

*Bib. Johnsons Harv:*  
**ARITHMETICK**  
*(In two BOOKES:)*

The first of Vulgar Arithmetick  
with easie Rules to work all the first  
four Parts of Arithmetick, in whole  
Numbers, and Fractions.

The second of Decimall Arithmetick,  
whereby all Fractionall Operations are  
wrought in whole Number, in Mer-  
chants Accompts, without Reducti-  
*£ K* *R. Hy:*  
with the perfect working of  
Interests and Annuities.

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By **JOHN JOHNSON** Surveyer, and  
Practitioner in the Mathematicks.

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*Welford* The fourth Edition. of Collier

Whereunto is added certain Tables of Interest, easily  
calculated at 10, 8, 7, and 6 per cent. With many  
other Tables: as, the Reduction of Weights; the  
Square and Cube Root; the weight and value of  
English Gold, very delightfull and profitable.

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London, Printed by *R. Cotes* for *Sam. Enderby*,  
and *Job. Sweeting*, at the Star, and Angel in  
*Pipes head-Alley*, 1646.

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*E*

*Q*



*Right Honourable and Worshipfull the  
Merchant Adventurers of London and Bristol,*

**T**He very Arts (Right Honourable and Worshipfull) which were wont to beate the attributions of [*honestæ & liberales*] seeme now to temporize, and to have learned the new-found skill of equivocation. For, howsoever the former of these denominations adhereth constantly unto the Professors of Mathematick Sciences; yet the other, which was once derived [*a liberalitate*] and then intimated that they were anciently accustomed to perform liberall recompence to their lovers and followers, hath now (to spare cost) purchased a different etymologie [*a libertate*] as properly accommodate to such as are [*liberi*] freeborn, or (as our peculiar terme carryeth) Freemen. Which heing so, and seeing that in this particular, as well as in many other of greater consequence, *Tempora mutantur*—: I am thereby enforced to make up the old verse, adding —*& nos mutamur in illis*; and to apply my long experience, together with redious studies bestowed in this present Art of Numbers, to the use and behoof of those persons, to whom by the generall appellation it properly belongeth, namely, to the studious thereof in these Honorable Cities. Which is the cause that I presume (without farther self-praise of what I have brought more usefull, more easie, or more eertain and delightfull in the operations, then hath been seen before) to present my Labours to your Honorable and Worshipfull judgments, to whom I owe of duty, whatsoever can be of me performed, to the furtherance of Art, and the honour of these noble Cities, and the worthy Companies therein.

Your Honours and Worships devoted  
in all humble respect,

JOHN JOHNSON, Survaighor.

## The Epistle to the Reader.

**G**entle and Curteous Reader, having for many years past spent my time both in reading, practising, and conferring with others in and about the study of the Mathematicall Sciences; and through great pains and travaile, at the request of divers Worshipfull Gentlemen, Merchants, and others of my very loving friends; I have at last collected and gathered together many excellent Rules and easie Abbreviations in the Science of Arithmetick, which at the entreaty, and by the meanes of the help of some of them; I have at last made bold here to present abroad unto the Worlds view, the first fruits of some idle hours study; the most part whereof I doe acknowledge to have gotten by the practise and use of the most excellent Instrument, invented by Mr. William Pratt, called, *The Jewel of Arithmerick*; in which I have done the best of my endeavours, not to hide that Talent in the earth, which God hath bestowed upon me for the benefit of others; but rather to his great glory and praise, and for the benefit of my Countrey, and for the furthering of all that are studious in the Art of Numbers, I have laboured to set it forth in the most brieft, plaine, and easie manner that I could fit for the understanding of the weakeft and meanest capacity. In which, if any thing shall seeme obscure or doubtfull to any man, I could wish my self were present to resolve his doubts; for I have endeavoured to make the Rules as brief, short and easie as I could devise.

In my first Book I have intreated concerning vulgar Arithmerick, with new inventions of my owne; in all the first foure parts of Arithmerick; viz. in *Addition* and *Subtraction*, with two severall kinds of *Multiplication*,

## To the Reader.

tion, not charging of the memory, never extant before in any Author that I have read; with foure severall kinds of *Division*, the latter of them bringing the proof by *Addition* of the figures under the dividend, without any multiplication, or casting away of nines, according to the accustomed manner.

Again, in the worke of *Fractions*, I have set them forth in plain and perfit figures, after another manner of my owne invention, because the fractionall figures in most books of *Arithmetick* were so unperfit, that they were scarce to be discerned, and in this manner they will performe all fractionall operations, as well as if they were set out according to the usuall manner. In the end of which Rules I have shewed the reasons and proofes of *Fractions* by the known parts of coyne.

Thirdly, in the second part of the former book, I have set forth reduction both in coin sterling, weights, measures, time, & motion; the Tables wherof are in the first part of the book, with divers Rules how to bring pence or farthings at the first work into pounds, shillings, and pence; with divers questions wrought by Reduction; with *Progression Arithmeticall*, and *Geometricall*, with examples.

And lastly, I have shewed how to work the Rule of 3 Direct and Converse, both in whole numbers and fractions, after divers severall manners of workings; and how to find the Divisor in any question; as also divers waies to work Fellowship, Barter, Exchange, Allegation, Interest, Position, and all other operations *Arithmeticall*, with examples and brieve Rules of every part.

In my second Book of *Decimall Arithmetick*, I have first described out the parts and use of the decimall Table, and how to set forth any number given in *Decimalls*.

Secondly, I have shewed how to work all the severall

## The Epistle, &c.

parts of Arithmetick, viz. Numeration, Addition, Subtraction, Multiplication, and Division in Decimalls; with examples and proofes of every worke in the known parts of Coyne.

Thirdly, I have handled in as brieft manner as I could, the Rule of 3, Fellowship, Barter, Exchange, and Interest in Decimall Arithmetick, as before in Vulgar; in which you may perceive the great Labour that is avoided in vulgar Arithmetick; with divers examples and proofes of the same.

Lastly, I have added a small Treatise of Interest and Annuities; with the manner how to calculate Tables, or Breviats at any rate or yeares purchase given; all which I have drawn into a pocket volume.

And thus hoping of your friendly censure and acceptance of these fruits of my labours, I cease; hoping to have my true endeavours and meaning well taken; desiring a blessing from God upon these my poore labours; wishing all happinesse to the London and Bristol Merchant, and to all others, I take my leave.

John Johnson.

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JOHN.



# JOHNSONS ARITHMETICK.

## CHAP. I.

### *Numeration.*



umeration is the first part of Arithmetick, which sheweth how to pronounce the value of any number of figures given; which are expressed by ten figures, whereof the tenth is a Cypher, signifying nothing of it selfe; but being joyned with figures, helpeth to increase the value: the figures are these;

one, two, three, foure, five, six, seven, eight, nine, cipher.

I. 2. 3. 4. 5. 6. 7. 8. 9. 0.

*How to expresse the value of a number given.*

If a number be given, whose value is to be expressed, you shall understand that the figure next the right hand is the least in value, and signifieth simply his owne value,

B

as

as the figure of 1 doth signifie but one, and the figure of 2 doth signifie but two, and the figure of 8 signifies but eight, and so of any other. And in the second place towards the left hand, every figure is in value tenne, so that the figure of 1 there doth signifie tenne, the figure of 2 twenty, the figure of 8 eighty, and so of all other: in the third place towards the left hand, every figure is in value one hundred, so that the figure 1 in that place signifies one hundred, the 2, two hundred, &c. In the fourth place, every figure is in value one thousand, so there the figure of one signifies one thousand, the figure 2, two thousand, &c. In the fifth place, every figure is in value ten thousand: in the sixth place, one hundred thousand; and in the seventh place, one thousand thousands, or one million: in the eighth place, tenne millions: in the ninth place, one hundred millions: in the tenth place, one thousand millions, or one milliot; and so infinitely names may be given to the value of every prick, as is usuall in the second part of Arithmetick, of Number, Square, Cube, sur-solid, &c. or in Astronomicall Arithmetick, primes, seconds, thirds, fourths & fifths, &c.

Now to expresse the value of any number given, set a prick with the pen over the fourth figure, towards the left hand, and over the

the

the seventh, and tenth; and so over every third figure towards the left hand, to the end of your figures, as in this Example:

*Thous. mill. Millior. Mill. Thousand.*

2 3 7 8 5 6 3 5 4 3 0 2 5 6 7

Now begin and expresse the first foure figures towards the right hand, as if they stood alone, which are 2567, or two thousand five hundred sixty seven. Then reade the figures belonging to the second prick, which are 430, as if they stood alone thus, foure millions three hundred two thousand five hundred sixty seven: then take the three figures belonging to the third prick, which are 635, or six millions three hundred fifty foure millions three hundred and two thousand five hundred sixty seven: and so this whole sum is thus to be read, two hundred thirty seven thousand eight hundred fiftie six milliots three hundred fiftie foure millions three hundred and two thousand five hundred and sixty seven; and so of any other sum.

**CHAP. II.**

*Addition.*

**A**ddition is the second part of Arithmetick, and serveth to adde or collect di-

vers summes of severall denominations, and to expresse their totall value in one summe.

In Addition begin to adde your sums at the right hand with the smallest numbers or denominations first, and gathering of their totall mark how many of the smaller makes one of the next greater; as if your addition be Farthings, for every foure farthings carry one peny in minde to bee added to the numbers in the place of pence, and for every 12 put one shilling into the number of shillings, and for every 20 shillings, one pound into the place of pounds; and therefore to know how many of the smaller denominations, makes one of the next greater: I have hereadded in this place the severall Tables of Coyne sterling, of Weights, of liquid Measures, and dry Measures, of long Measures, of Time and Motion; which are very necessary to be knowne of every Practitioner in Arithmetick, before he proceeds any further in the practise of Arithmetick, being used in every particular Rule of Arithmetick more or lesse.

*The Table of Coyne Sterling.*

Foure farthings makes one		Pence	Farth.
peny	—	1	4
One shilling is	—	12	48
			One

# Addition.

5

One pound Sterling is 20		
shillings —————	240	960
One hundred pound Ster-		
ling is —————	24000	96000

## Example.

l.	s.	d.	l.	s.	d.	q.
785976.	17.	3.	324.	8.	11.	1
80254.	10.	7.	222.	17.	3.	1
23547.	11.	0.	187.	10.	2.	0
7853.	12.	2.	354.	12.	1.	0
248.	00.	0.	1856.	00.	2.	0
93.	10.	1.	7859.	1.	11.	1
7.	11.	3.	3275.	1.	9.	0
Su. 897981. 12.			4   14079.	12.	3.	3

## The explanation of these Examples.

In the first example toward the left hand I begin with farthings, which are 3, which I set downe: then next 9 pence and 11 is 20, and 2 is 22, and 1 makes 23, and 2 makes 25, and 3 makes 28, and 11 makes 39 pence, or 3 shillings 3 pence; I set downe the 3 pence, and carry in minde the 3 shillings to be added to the place of shillings. Then adde the severall summes of shillings, which are 1.1.2.7. 8, the totall is 19, and the 3 in minde makes 22 shillings; set downe the 2 shillings, and keepe two tennes to bee added

B 3

to



to the tennes of shillings, which are 3 tens, which makes 5 tennes, or 50 shillings; set downe the odde tenne to the two shillings, which makes 12 shillings, and carry 2 pound for the forty shillings to the next place of pounds, which are 5.9.6.4.7.2.4, and the 2 in minde makes 39; leave the 9 under the place of unites, and carry 3 tennes in minde, and 7, 5.5.5.8.2.2, totall is 37; set downe the 7 under the place of tennes, and carry 3 in minde for the 30 tennes, which is 3 hundred: then 3 in minde, and 2.8.8.3.1.2.3, totall is 30; set a cypher, or 0 in the place of hundreds, and carry 3 for the 30 into the place of thousands: then last of all, 3 in mind, and 3, 7, 1 makes 14 thousand, and because it is the last summe, you must set them all downe, placing the 4. under the place of thousands, and the 1 one place more towards the left hand, and then the totall summe of those particulars will bee 14079 pound, 12 shillings, 3 pence, 3 farthings, as appeareth in the example; and in the like manner is the other example to be cast up into one Totall: and so I will here end with Addition of Coine, and put a severall example of every table for the full *Tables* and perfect understanding of the said table, which are of great use in all the severall rules of Arithmetick.

*The*



*The Table of Haberdepoyse weight.*

<i>Haberd. the pound.</i>	<i>oun.</i>	<i>Dra.</i>	<i>Scrup.</i>	<i>Grai.</i>
One pound is —	16	128	384	7680
One half pound is —	8	64	192	3840
One quarter of a pound is —	4	32	96	1920
One eighth of a pound is —	2	16	48	960
One sixteenth of a pound is —	1	8	24	480

<i>The Hundred.</i>	<i>Pou.</i>	<i>Oun.</i>	<i>Dra.</i>	<i>Scrup.</i>
One hundred is —	112	1792	14336	43008
One halfe hundred is —	56	896	7168	21504
One quarter hundred is —	28	448	3584	10752
One halfe quarter hundred is —	14	224	1792	5376

*Examples of Weights.*

<i>C.</i>	<i>qu.</i>	<i>li.</i>	<i>oun.</i>	<i>C.</i>	<i>q.</i>	<i>li.</i>	<i>oun.</i>	<i>dr.</i>
27.	3.	27.	6	127.	3.	17.	8.	3.
18.	1.	17.	12.	118.	2.	10.	12.	1.
13.	3.	10.	3	33.	0.	0.	0.	0.
73.	0.	0.	5.	17.	1.	12.	2.	3.
83.	2.	5.	12.	22.	3.	1.	7.	0.
<u>2</u>	<u>2</u>	<u>3</u>		<u>17.</u>	<u>0.</u>	<u>10.</u>	<u>3.</u>	<u>0.</u>
				2	1	2		
216	2	5	6	336.	3.	24.	00.	7

*The Explanation.*

In the Harberdepoysse weight, 20 graines make one scruple, 3 scruples one dram, 8 drams one ounce, 16 ounces one pound, 112 pound is one hundred of the Harberdepoysse weight, whereby is sold all kind of Merchandise usuall in this Realme, and therefore in Addition of Weights Harberdepoysse, for every 3 scruples adde one dramme, and for every 8 drams one ounce, and for 16 ounces 1 pound, for 28 pound one quarter of a hundred, and for every 4 quarters one hundred. First, I begin with the drams in the first example to the right hand, which are 3.1.3, totall is 7 drams, which I note downe underneath, because they are lesse then one ounce. Secondly, the ounces are 3.7.2.12.8. Totall is 32. ounces, or 2 pound, because 16 ounces is one pound; which 2 I set under the place of pounds with a light touch of the penne for to remember it the better, and place a Cypher in the place of ounces. Thirdly, the pounds are 2.10.1.12.10.17. Totall is 52 pound, which is one quarter of a hundred, & 24 pound, place 24 pound under the place of pounds, and put one quarter, as before in the place of quarters of hundreds. Fourthly, 1.3.1.2.3 quarters, are 10 quarters, or 2 hundred and 2 quarters, or halfe a hundred; place  
2 quar-

2 quarters in the place of quarters, and put over 2 into the place of hundreds for the 8 quarters. Then 2. 7. 2. 7. 3, 8. 7. makes 36 hundred, place 6, and carry 3 for the 30: then say, 3. 1. 2. 1. 3. 1. 2, totall is 13, place 3 there, and carry one for the 10, which one in mind, and 1, 1 makes 3, which set downe, and the totall is 336 hundred, 2 quarters, 24 pound, 0 ounces, 7 drammes; and so the other example is in the same manner to be cast up, and so of all other.

*The Table of Liquid Measures.*

	Pints
One pound or pint	1
One quart	2
One pottle	4
One Gallon	8
8 Gallons, a Firkin of Ale, Sope, or Herring	64
One Firkin of Beere	72
One Firkin of Salmon, or Eeles	85
2 Firkins, or one Kilderkin of Beere	144
2 Kilderkins, or one Barrell	288
One Tirce of wine	336
63 Gallons one Hogshed of wine	504
2 Hogsheds, or a Pipe or Butt	1008
2 Pipes, Buts, or a Tunne of wine	2016

*The Table of Dry Measures.*

	Pints
One Pint	1
One quart	4

One Pottle	4
One Gallon	8
One Pecke	16
4 Pecks one Bushell Land-Measure	64
5 Pecks, one Water-bushell	80
8 Bushels one Quarter	512
4 Quarters one Chaulder	2048
5 Quarters one Waye	2560

*The Table of Long Measures.*

Three Barley Cornes in length, one Inch	1
One Foote	12
One Yard, or 3 Foote	36
Or 3 Foote 9 Inches, an English Ell	45
Or 6 Foote one Fadome	72
Or 5 yards and a half, a Pole or Perch	198
Or one Perch in breadth, and 40 long, one Rood	198
Or 4 Perches breadth, and 40 long, an Acre of land	792
160 Square Perches, is one Acre	792
40 Roddes in length is one Furlong, and 8 Furlongs is an English Mile.	

*The Table of Time.*

One Minute	1
One Hower	60
One Day naturall, or 24 Howers	1440
	One

## Addition.

II

One Weeke, or 7 Dayes	10080
One Moneth, or 4 Weeks, or 28 Dayes	40320
13 Moneths one Day 6 Houres, or 365 Dayes, one Year	525960

## The Table of Motion.

360 Degrees, 21600 Minutes, 129600 seconds	12 Signes.
30 Deg. 1800 min. 108000 sec.	1 Signe.
1 deg. 60 min. 3600 sec.	1 Degree.
1 min. is 60 sec.	1 Minute.
1 second	1 Second.
7776000 thirds make the 12 Signes	1 Third.
466560000 fourths make the 12 Signes	1 Fourth.
27993600000 fifths is 12 signes	1 Fifth.
1679616000000 fixths is 12 Signes	1 Sixth.

*The explanations of these Tables, and the examples following.*

First, in the example of Acres, Roods and Perches; for 40 Perches put 1 Rood into the place of Roods, & for every 4 Roods 1 Acre.

Secondly, for every 4 quarters of Inch, take 1 Inch, and for every 12 Inches 1 Foot, and for every 3 Foote, one Yard.

Thirdly, for 16 pints take one pecke, and  
for 2

for every 4 peckes one Bushell, into the place of Bushels.

Fourthly, for every 8 pints of liquid measure, take one Gallon, and for every 63 Gallons one Hoghead.

Fifthly, in the example of time; for 60 minutes take one houre, and for 24 houres one day, and for 365 dayes, one yeere.

Sixtly, for 4 nayles take one quarter of a yard, and for 4 quarters one yard, &c.

Lastly, in the example of motion, for 60 thirds, take 1 second, & for 60 seconds take one minute, and for 60 minutes take one degree, and for 30 degrees take one Signe.

And this is the use of these Tables in Addition and Subtraction; for looke what you carry over in Addition, that you must borrow in Subtraction, I will here adde examples of every kind, leaving the Reader to exercise himselfe by the Rules before taught.

*Example.*

<i>Acres,</i>	<i>Rood,</i>	<i>Per.</i>	<i>Feete.</i>	<i>Inch.</i>	<i>Quart.</i>
127.	3.	21	124.	7.	3
246.	1.	12	246.	11.	4
17.	3.	22	134.	7.	2
27.	1.	8	120.	8.	0
37.	0.	17	72.	10.	2
2	2		3	2	
456.	2.	00	699.	9.	3.
					<i>Bushel</i>

# Addition.

13

Bushel, Pecks, Pints.			Yard. Quar. Naile.		
127,	3,	11	127,	2,	3
256,	1,	7	359,	1,	4
345,	0,	0	152,	3,	0
184,	2,	10	16,	0,	0
<u>1</u>	<u>1</u>		<u>1</u>	<u>1</u>	
913.	3.	12	656.	3.	3.

Yeares, dayes, houres, min. seconds.

356,	245,	16,	35,	20
249,	100,	12,	30,	00
756,	12,	00,	10,	12
140,	27,	30,	25,	02
1618,	00,	20,	00,	00
<u>1</u>	<u>3</u>	<u>1</u>		

3120. 22. 07. 40. 34.

Signes, degrees, minutes, seconds, thirds.

11,	22,	32,	24,	18
8,	19,	17,	20,	12
10,	07,	00,	08,	15
2,	17,	35,	50,	59
<u>3,</u>	<u>29,</u>	<u>30,</u>	<u>12,</u>	<u>00</u>
3	1	1	1	
37.	05.	55.	55.	44.

The prooffe of Addition.

The proof of Addition is made by Subtraction;

tion; for if you subtract the numbers which you added from the totall of the Addition, there will remaine nothing, if the work be truly done.

*Example.*

<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
378567.	19.	10.	1.
240023.	10.	2.	0.
854326.	07.	1.	0.
785634.	13.	3.	2.
320500.	00.	11.	1.
2	2		

---

*Totall,* 2579052.    11.   4.   0.

First, adde together the greatest Summes in value in the place of hundred thousands, which makes 23, which take from 25, and there will remaine 2, then the figures in the fifth place, 26 taken from 27, there will remaine 1. Thirdly, the figures in the place of thousands, makes 17, which taken from 19, leaves 2, then 19 in the place of hundreds taken from 20, leaves 1: and againe, 13 in the place of tennes from 15, leaves 2: and lastly, 20 in the place of unites from 22 pound, leaves 2 pound: then 49 shillings from 2 pound 11 shillings, leaves 2 shillings:



# Addition.

15

lings : also 2 shillings 3 pence in the place of pence, from 2 shillings 4 pence, leaves 1: and last of all, 4 farthings from 1 penny, leaves nothing, which proves the worke to bee truly wrought.

		l.	s.	d.	q.
The Totall.	2579052.	xx	4	0.	
	322222.	2.	2.	0.	

## The second prooffe of Addition.

Cut off the uppermost numbers with a dash of the pen, and adde the remainder into one Totall, and then subtract that sum from the whole Totall, and the remainder will be the numbers which you cut off, if the worke be true, else, not.

### Example.

	378567,	19,	10,	1.	
	240023,	10,	2,	0	
	854326,	7,	1,	0	
	785634,	13,	3,	2	
	320500,	00,	11,	1	
The total	2579052,	11,	4,	0	of all
Subt.	2200484,	11,	5,	3	the sum
The	378567,	19,	10,	1	prooffe

And so much shall suffice to have spoken of Addition, and the proof thereof.

Questions

*Questions of Addition.*

What number is that, to the which if you doe adde 45, the totall will bee 357.

*Answer,* subtract 45 from 357, remaines 312.

*Example.*

$$\begin{array}{r} 357 \\ 45 \\ \hline 312 \end{array}$$

What three numbers are those, to which if you adde 27, 36, and 45, their products shall bee equall, and the summe arising shall be 120.

*Proöfe.*

120	120	120	93
27	36	45	27
<hr/>	<hr/>	<hr/>	<hr/>
93	84	75	120

What number is that, to the which if you doe adde 354 pound, 7 shillings, 9 pence, the totall will be 513 pound, 15 shillings, 0 penny. *Answer:* Subtract 354 pound, 7 shillings, 9 pence, from 512 pound, 15 shillings, 0 penny, and the remainder will bee 158 pound,

# Subtraction.

17

pound, 7 shillings, 3 pence, which is the number that you doe seek.

Example.

<i>l.</i>	<i>s.</i>	<i>d.</i>
512.	15.	0.
354.	7.	9.

---

158.	7.	3.
------	----	----

---

## CHAP. III.

### Subtraction.

**S**ubtraction serveth to deduct one sum from another; the lesser from the greater; and to shew the remaines.

Place your great number, from which the Subtraction is to be made, in the uppermost part, and the number to be subtracted, or deducted right underneath every figure under his like kind, or denomination, viz. pounds under pounds, shillings under shillings, and pence under pence, &c. in this manner;

	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
<i>Lent.</i>	7756.	13.	10.	1.
<i>Paid.</i>	3949.	17.	11.	12.
<i>Rest.</i>	3806.	15.	10.	3.
<i>Proo.</i>	7756.	13.	10.	1.

Then

Then begin your subtraction at the left hand, at the smallest numbers; but if the lowest figure of the undermost numbers be the greatest, that it cannot be abated out of the number above it, then adde one of your next greater denomination; and make your subtraction from both, noting the remainder: as if you have 10 pence to take from 7 pence, adde one shilling, or 12 pence, unto 7 pence, that maketh 19 pence; then take 10 pence from 19 pence, and there will remaine 9 pence, which note downe under the 10 pence: and because you did borrow one shilling, therefore in the number of shillings you shall take away one more then it is, in the next place of shillings: and this rule is generall, in Coyne, Measure, Time, Motion, or any other thing else whatsoever.

1. *Example of Subtraction of Coyne.*

	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
<i>Lent.</i>	789786.	17.	11.	3.
<i>Paid.</i>	692583.	19.	10.	1.
<hr/>				
<i>Rest.</i>	97202	18.	1.	2.
<hr/>				
<i>Proo.</i>	789789.	17.	11.	3.
<hr/>				

# Subtraction.

19

## 2. Example of Weights.

	C.	q.	li.	oun.
Lent.	127.	3.	27.	10.
Paid.	38.	2.	24.	15.

---

Rest.	89.	1.	2.	11.
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Proof.	127.	3.	27.	10.
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## 3. Example of Time.

*Years, dayes, heures, min.*

Tot.	1618.	340.	20.	56.
Ded.	1581.	122.	15.	59.

---

Rest.	0037.	218.	04.	57.
-------	-------	------	-----	-----

---

Pro.	1618.	340.	20.	56.
------	-------	------	-----	-----

---

## 4. Example of Motion.

*Sig. Deg. Min. Second. Thirds.*

Tot.	11.	22.	36.	52.	40.
Subt.	7.	29.	51.	42.	56.

---

Rest.	3.	22.	45.	09.	44.
-------	----	-----	-----	-----	-----

---

Pro.	11.	22.	36.	52.	40.
------	-----	-----	-----	-----	-----

---

The

*The Explanation of these Examples.*

In the first example of Coyne, begin your Subtraction at the right hand, saying: 1 farthing from 3 farthings, leaves 2 farthings, which note downe under the 1 farthing. Then 10 pence from 11 pence, leaves 1 penny. Thirdly, 19 shillings from 17 shillings you cannot have, therefore take one pound; or 20 shillings, and adde to 19 shillings, saying, 19 shillings from 37 shillings, rests 18 shillings, which note downe. Then 1 that you borrowed, and 3 pound, is 4 pound from 6 pound, leaves 2 pound to set downe under 3. Then 8 from 8 leaves nothing, place there a Cypher, or 0 under 8. Then 5 from 7 rests 2; then 2 from 9 leaves 7, which also note againe; 9 from 8 cannot be taken, then make it 10 more, and say 9 from 18 leaves 9, which set downe: and last of all, 1 borrowed and 6 is 7, from 7 leaves nothing, and the worke is ended, and the remainder will bee 97202 pound 18 shillings 1 penny 2 farthings, as appeareth in the example before going.

*The exposition of the second Example.*

First, take 15 ounces from 10, which cannot

not be, then adde 1 pound, or 16 ounces to 10, makes 26; then say, 15 from 26 leaves 11 ounces, which notedowne: then 1 borrowed, and 24 is 25, from 27 pound leaves 2 pound remaining; then 2 quarters from 3 quarters, leaves 1 quarter remaining; then 8 from 7 cannot bee, therefore take 8 from 17, rest 9, which note downe: then one borrowed and 3 makes 4, from 12 rests 8, and the worke is done, and the remaine is 89 hundred 1 quarter 2 pound 11 ounces.

3. *Example.*

First, take 59 minutes from 56 minutes cannot be, but then take 59 minutes from 60 minutes, or 1 houre, and there will remaine 1 minute, which adde to 56 minutes, and that will make 57 minutes, which note downe in the place of minutes: then 1 borrowed and 15 houres makes 16 houres, which taken from 20 houres leaves 4, which note under the 15, and then 2 dayes from 0 cannot bee, but 2 from 10, and there will remaine 8, which note down: then 1 borrowed and 2 makes 3, from 4 leaves 1; also 1 from 3 leaves 2: lastly, 1 from 8 leaves 7, and 8 from 11 leaves 3; then 1 borrowed and 15 makes 16, from 16 leaves nothing,  
and

and the remainder will bee 37 yeares 218 dayes 4 houres 57 minutes; the like is done in the other example of Motion, and therefore here needlesse to be rehearsed.

*To subtract from a Unite.*

Set downe with your pen a Unite in any place, adding Cyphers into it, and the severall numbers which you will subtract from it of pounds, shillings and pence right underneath: then note what each severall number of your lowest numbers doth want of 9 unto the place of Unites, and set that right under for the remainer: and lastly, note what your shillings and pence doth want of 20 shillings, and set that downe for your remainer, and the work is ended.

*Example.*

	<i>l.</i>	<i>s.</i>	<i>d.</i>
<i>Lent.</i>	1000000.	00.	00.
<i>Paid.</i>	232864.	17.	03.

---

<i>Rest.</i>	767135.	2.	9.
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---

<i>Proof.</i>	1000000.	00.	0.
---------------	----------	-----	----

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*The prooffe of Subtraction.*

The surest prooffe of Subtraction is made by Addition; for if you adde the numbers remaining unto the totall of the numbers deducted, they will return your former sum, if the worke bee truly wrought, as will appear in the prooffe of all the severall examples before going; and therefore here againe in this place needlesse to bee rehearsed. Onely I will adde one for examples sake.

In the last example, the numbers which did remaine, were 767135 pound 2 shillings 9 pence, and the numbers deducted, 232864 pound 17 shillings 3 pence; these two numbers added together, ought to make a unite in the seventh place; wherefore I adde 9 pence to 3 pence, makes 1 shilling; and 1 shilling to 17 shillings, makes 18 shillings, and 2 shillings make 20 shillings; then 1 and 4 is 5, & 5 is 10, which is one in the next place; then 1 and 3, and 6 is 10; and 1. 1. 8. makes 10, and 1. 7. 2. makes 10, and 1. 6. 3. is 10, and lastly, 1. 7. 2. makes 10. or one unite.

## CHAP. IV.

*The Table of Multiplication.*

1	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	18
3	6	9	12	15	18	21	24	27
4	8	12	16	20	24	28	32	36
5	10	15	20	25	30	35	40	45
6	12	18	24	30	36	42	48	54
7	14	21	28	35	42	49	56	63
8	16	24	32	40	48	56	64	72
9	18	27	36	45	54	63	72	81

**T**His Table of Multiplication must be learned perfectly by heart, for to know readily what the multiplication of any two digit numbers under nine, or unto nine doe make, and then Multiplication will be very easie : for Multiplication is a number of additions speedily performed, as if you should say. How many in number is 8 times 7, if you should set downe 7 eight times one under another, and adde them together, the totall

## Multiplication.

25

call will bee 56: but if you looke in the Table for 8 in the head, and 7 in the side, you shall find under 8, right against 7 in the same parallell 56; or if you find 8 in the side, and 7 in the head, the like number will appear, and these numbers in the Table are to be fixt in memory.

I *Example according to the usual way.*

87968. *The Multiplicand.*

987. *The Multiplier.*

First, begin your multiplication at the right hand, saying, 7 times 8 makes 56, place 6 under the 7, and keepe 5 in minde; to bee added to the Product of the Multiplication of 7 by 6, saying 7 by 6 makes 42, and 5 in minde is 47; set 7 downe under the 6, and keepe 4 in minde: then 7 by nine is 63, and 4 makes 67; set 7 downe, and keepe 6 in mind: then 7 by 7 is 49, and 6 is 55; place 5 and keepe 5 in minde: lastly, 7 by 8 is 56, and 5 is 61, which set downe the 1 first, and the 6 one place more towards the right hand; and so the multiplication by the first figure 7 is done, then cancell the 7 of your multiplier, and your work will stand, as in this example.

C

87968

*Multiplication.*

87968

987

---

 615776

Secondly, begin with 8, the second figure of your multiplier, saying, 8 times 8 is 64; place the 4 under the said 8, and keepe the 6 in mind: then 8 by 6 is 48, and 6 makes 54: set downe 4 in the next place, and keepe 5 in mind: then 8 by 9 is 72, and 5 makes 77; set downe 7, and keepe 7 in mind: then 8 by 7 is 56, and 7 makes 63; set downe 3, and keepe 6. Lastly, 8 by 8 is 64, and 6 makes 70, set the 0 first, and the 7 one place more towards the left hand, and cancell the 8 of your multiplier, and the worke will stand thus.

87968

987

---

 615776

703744

Thirdly, begin with 9, the last figure of your multiplier, saying, 9 by 8 is 72; place the 2 under the said 9, and keepe 7: then 9 by 6 is 54, and 7 is 61; place 1, and keepe 6: then 9 by 9 is 81, and 6 is 87; place 7, and keepe 8: then 9 by 7 is 62, and 8 is 71: place 1, and keepe 7: last of all, 9 by 8 is 72, and 7

is

# Multiplication.

27

is 79; place the 9 first, and the 7 one place more towards the right hand, and the whole worke is ended, then gather the totall by addition.

## 1. Example.

87968 *multiplicand.*

987 *multiplier.*

---

615776

703744

791712

---

86824416

---

## 2. Example with Cyphers.

703286501

32057

---

4923005507

3516432505

14065730020

2109859503

---

22545255362557

---

## The exposition of this Example.

First, 7 by 1 is 7, which note downe : then 7 by 0 is nothing, set down a 0 in that place: and next 7 by 5 is 35, set 5, and carry 3: then 7 by 6 is 42, and 3 is 45, place 5, and carry 4: then 7 by 8 is 56, and 4 is 60, set downe a 0, and carry 6 againe : 7 by 2 is 14, and 6 makes

C 2

makes 20, set downe a 0, and carry 2 : then 7 by 3 is 21, and 2 makes 23, place 3, and carry 2 : then 7 by 0 is 0, leave the 2 in that place : then lastly, 7 by 7 is 49, being the last number, set downe all the 9 under 7, and the 4 one place more to the left hand, and the worke will then stand thus.

$$703286501$$

$$32057$$


---


$$4923005507$$

Secondly, cancell 7, and then say, 5 by 1 makes 5, place that 5 under the 0; and then 5 by 0 is 0, place a 0 under the 5 in the next place; and then 5 by 5 is 25, set downe 5, and carry 2 : then 5 by 6 is 30, and 2 makes 32, set downe 2, and carry 3 : then 5 by 8 is 40, and three makes 43, place 3, and carry 4 : also 5 by 2 is 10, and 4 makes 14, set downe 4, and carry 1 : then 5 by 3 is 15, and 1 makes 16, set downe 6, and carry 1 : then 5 by 0 is 0, set downe the 1 there : last of all, 5 by 7 is 35, set them all downe, and the worke will then stand thus.

$$703286501$$

$$32057$$


---


$$4923005507$$

$$3516432505$$

Thirdly, cancell the 5, and then say, 0 by 1 is

1 is

# Multiplication.

29

1 is 0, place a 0 under the 0 of your multiplier, and then proceed to the next figure of your multiplier, which is 2, saying, 2 by 1 is 2, place the 2 under the said 2 of your multiplier: then 2 by 0 is 0, which set downe: then 2 by 5, makes 10, set downe a 0, and carry 1: then 2 by 6 is 12, and 1 is 13, set downe 3, and carry 1: also 2 by 8 is 16, and 1 is 17, set downe 7, and carry 1: also 2 by 2 is 4, and 1 makes 5, which set downe: againe, 2 by 3 is 6, which set downe: lastly, by 7 is 14, which set downe, and the worke will stand, as in this example.

$$\begin{array}{r}
 703286501 \\
 32057 \\
 \hline
 4923005507 \\
 3516432505 \\
 14065730020
 \end{array}$$

Fourthly, cancell the 2, and say, 3 by 1 is 3, which place right under the said 3: then 3 by 0 is 0, and worke in all respects as before, & the work being ended will stand thus.

$$\begin{array}{r}
 703286501 \\
 32057 \\
 \hline
 4923005507 \\
 3516432505 \\
 14065730020 \\
 2109859503 \\
 \hline
 22545255362557
 \end{array}$$

I

I will here adde some few examples to be wrought by the penne, without any troubling of the memory with bearing ought in mind.

*Example.*

87968 *multiplicand.*  
987 *multiplier.*

---


$$\begin{array}{r}
 46456 \\
 56932 \\
 57464 \\
 64628 \\
 68572 \\
 72314 \\
 \hline
 \text{Product. } 86824416
 \end{array}$$

*2 Example.*

79648039 *multiplicand.*  
8976 *multiplier.*

---


$$\begin{array}{r}
 53240154 \\
 42464808 \\
 64250263 \\
 49328601 \\
 85370281 \\
 63146207 \\
 74360272 \\
 56282404 \\
 \hline
 714920798.064 \text{ Product.} \\
 \hline
 \end{array}$$



## Multiplication.

31

*The explanation of the worke by the pen, without charging the Memory.*

*The first Example.*

$$\begin{array}{r} 87968 \\ 987 \end{array}$$

---

First, I multiply all the figures of my multiplicand by 7, the lowest figure of my multiplier, saying, 7 by 8 is 56, put 6 under the 7, and 5 under the 8 : then 7 by 6 is 42, leave the 2 under 5 last placed, and set the 4 one place more towards the left hand under the 9 : then 7 by 9 is 63, leave 3 under the 4 last placed, and set 6 one place more to the left hand under 7 : then 7 by 7 is 49, leave 9 under the 6 last placed, and the 4, set one place more to the left hand under the 8 : lastly, 7 by 8, makes 56, leave 6 under the 4, and place 5 one space more to the left hand, as before, then cancell 7 of your multiplier, and the multiplication by the first figure is ended and the worke will stand thus.

*Example.*

$$\begin{array}{r} 87968 \\ 987 \\ \hline 46456 \\ 56932 \\ C4 \end{array}$$

Then

Then for the second worke, say, 8 by 8 is 64, place 4 under the said 8, and put 6 under the next figure 3: then 8 by 6 makes 48, leave 8 under 6, and put 4 under the next 9: and so working in all respects as at the first, and your second worke will stand thus, as in this example.

$$\begin{array}{r}
 87968 \\
 987 \\
 \hline
 46456 \\
 56932 \\
 57464 \\
 64628
 \end{array}$$

Lastly, cancel 8 your multiplier, & then multiply by 9, as is before taught, placing the first figure of your product under the figure multiplying, and the work being ended it will stand thus; and lastly, gathering the totall by addition, it is 86824416; as in this example.

$$\begin{array}{r}
 87968 \\
 987 \\
 \hline
 46456 \\
 56932 \\
 57464 \\
 64628 \\
 68572 \\
 72314 \\
 \hline
 \text{Product. } 86824416
 \end{array}$$

There

There is no difficultie in this kind of working, but onely when there falls a 0 in the multiplicand, or multiplier; for if there be a cypher, then you must fill up the places as you worke, either with pricks, or cyphers, as if you had figures to set in their places, and the rest of the worke is, as before is taught in the third example; but I will here adde one example, having all the difficulties that may happen, for the better understanding hereof.

*Example.*

$$\begin{array}{r}
 70921034 \\
 1293 \\
 \hline
 02000012 \\
 21076309 \\
 08100236 \\
 63018907 \\
 01000008 \\
 14084206 \\
 70921034 \\
 \hline
 \text{Product. } 91700896962
 \end{array}$$

C5

*Example.*

## Multiplication.

Example.

$$\begin{array}{r}
 80073902147368 \\
 179852 \\
 \hline
 00101000010116- \\
 16004680428462 \\
 000314010231340 \\
 40005550050550 \\
 00527010352464 \\
 64006420682648 \\
 00628010362572 \\
 72003710896374 \\
 00426010242456 \\
 516009130478912 \\
 80073902147368 \\
 \hline
 14401451449008429536
 \end{array}$$

*How to multiply and to bring the Product in the last line.*

Place your numbers right one under the other, as in the common way; then make a right line somewhat distant from the first numbers with your penne, as in the example following.

$$\begin{array}{r}
 87968 \\
 987 \\
 5648 \\
 \hline
 615776
 \end{array}$$

Then

# Multiplication.

35

Then beginne and say, 7 by 8 is 56, place the 6 under the line under the 7, and the 5 above the line in a smaller figure in the next place towards the left hand : then 7 by 6 is 42, and the 5 above the line makes 47, leave 7 under the 8, and set the 4 againe above the line : then 7 by 9 is 63, and the 4 above the line makes 67, place 7 there, and set the 6 in the next place above the line : then 7 by 7 is 49, and 6 above the line makes 55, leave 5 there, and put 5 againe over the line : lastly, 7 by 8 makes 56, and the 5 last placed makes 61, place that whole summe under the line, and the worke will stand, as above in the example.

Secondly, draw a line againe a little distant, as before from the last product, as in the example following.

*Example.*

$$\begin{array}{r}
 87968 \\
 987 \\
 \hline
 5645 \\
 \hline
 615776 \\
 68670 \\
 \hline
 765321
 \end{array}$$

Then say, 8 by 8 is 64, and 7 makes 71, place 1 under the 7, and set 7 above the line : then 8 by 6 is 48, and the two seavens be-  
tweene

twene lines makes 62, place 2 under the 7, and set 6 againe over the line: then 8 by 9 is 72, and 6 makes 78, and 5 makes 83, place 3 under the line, and 8 above the line: then 8 by 7 is 56, and 8 makes 64, and 1 makes 65; place 5 under the line, and set 6 above: lastly, 8 by 8 is 64, and 6 makes 70, and 6 makes 76, place them both downe; and the worke will stand as above in the example.

Thirdly, draw a line againe, as before, a little distant from the last product, as in this example.

*Example.*

$$\begin{array}{r}
 87968 \\
 987 \\
 5645 \\
 \hline
 615776 \\
 68670 \\
 \hline
 765321 \\
 7967 \mid \\
 \hline
 86824410 \text{ Product.}
 \end{array}$$

Thirdly, say 9 by 8 is 72, and 2 makes 74, place 4, and put 7 over the line: then 9 by 6 is 54, and 10 makes 64, place 4 under the line, and put 6 above: then 9 by 9 is 81, and 11 above makes 92, leave 2 under the line, and 9 over the line: then 9 by 8 is 63, and

15 makes 78, leave 8 under the line, and 7 above: lantly, 9 by 8 is 72, and 14 makes 86, place them both under the line, and then bring downe the two figures which are cut off by two right-downe lines, which are 1 and 6, and the worke is ended, and the work will stand, as appeareth in the example above, and the totall Product is in the last line, 86824416; and this doth not charge the memory, for all the figures are set down in view, and to be seene at the first sight, and this is the second kind of multiplication, without charging of the memory.

$$\begin{array}{r}
 79648039 \\
 8976 \\
 \hline
 5324025 \\
 \hline
 47788823 \quad 4 \\
 76461260 \\
 \hline
 60532509 \quad 6 \\
 86470390 \\
 \hline
 77737489 \quad 0 \\
 85470370 \\
 \hline
 714921798064
 \end{array}$$

## CHAP. V.

*Division.*

**S**Et your Dividend, which is the number to be divided in the upper part, and the Divisor next to the left hand, under the greatest figures in value of your Dividend : If the upper numbers be greater then the lower, or else place your divisor one place more towards your right hand, as in this example.

	<i>Quotient.</i>
<i>Dividend.</i> 7 8 5 6 7 (	
<i>Divisor.</i> 8 4	

If you would divide 78567 by 84, place them as above ; for because you cannot have 8 out of 7 in the Dividend, therefore place your 8 one place more towards the right hand, and the 4 next to it, and your quotient you must place at the right side of your numbers behind a crooked line. But I will first give an example of Division by one figure : I would divide 65490 pound amongst 5 men ; place your numbers thus.

*Example.*

x 4	
65490	( 13098 <i>The quotient.</i>
88558	

First,



First, I seeke how oft 5 is in 6, this I may have but once; then put 1 in the quotient beyond the crooked line, and take 5 out of 6, and there will rest 1, set that over 6, and then remove your divisor one place more to the right hand, and then seeke you how many times 5 may be had in 15, and the answer is, thrice; therefore place 3 in the quotient, and by it multiply your divisor 5, makes 15, which taken out of 15 leaves nothing, remove your divisor, and seeke how oft you may have 5 in the 4 over it, but you cannot have it once; wherefore put a 0 in the quotient, and remove your divisor, and seek how many times you may have 5 in the figures over and behind it, which are 49, and you may have it nine times, put 9 in the quotient and by it multiply your divisor 5, makes 45, which taken from 49, leaves 4, which place above the 9. And lastly, remove againe your Divisor 5 under the 0, and seek how many 5 is in 40, and you shall find it 8 times, place 8 in the quotient, and by it multiply 5, makes 40 which taken from 40, leaves nothing remaining & the work is ended, and will stand thus, as in the example, and I find, if I divide 65490 pound amongst 5 men, every man shall have for his part 13098.

~~65490~~ (13098

55555

And

And this is the order of Division for one figure: but if your Divisor doe consist of more figures then one, then you must take the first figure of your Divisor no oftner out of the Dividend, then you can also take every severall figure of your Divisor, out of the same figures of the Dividend standing above them: as for example.

If you would divide 86824416 by 987, which was one of the products of the multiplications in the rules before going, for a trial of your former worke, then place your numbers, as in the example following.

*Example.*

$$\begin{array}{r} 86824416 \text{ (8} \\ \underline{987} \end{array}$$

Then I seeke how oft I may have 9 in 86, I find I may have it 9 times; but if I consider the next figure 8 of my Divisor, I cannot have also 9 times 8 out of the numbers remaining; if I take 9 times 9, which is 81, out of 86, there will remaine but 5; and then 9 times 8, the next figure of my divisor, makes 72, which cannot bee taken out of 58 which will remaine: therefore I place 8 in the quotient, and by that I multiply all the figures of my Divisor, 987 makes 7896, which

# *Division.*

41

which taken from 8682, leaves 786 above them: and the worke will stand thus.

$$\begin{array}{r}
 786 \\
 \hline
 8682 \overline{) 4416} \quad (8 \\
 \hline
 987 \\
 7896
 \end{array}$$

Secondly, I remove my Divisor 987 one place nearer the right hand, and then I seek how oft I may have 9 in 78, which I see I can have but 7 times, so I put 7 in the Quotient, and by that 7, I multiply my Divisor 987, makes 6909, which taken from 7864, the numbers above them there will remaine 955, and the work will stand thus.

## *Example.*

$$\begin{array}{r}
 95 \\
 7865 \\
 \hline
 8682 \overline{) 4416} \quad (87 \\
 \hline
 9877 \\
 78969 \\
 698 \\
 00
 \end{array}$$

Thirdly, againe I remove my divisor 987 one place nearer the right hand, and seeke how many times I may have 9 in 95, and I find I may have it 9 times, which 9 I set in- to the Quotient, and by it multiply 987, makes

make 8883, which taken from 9554 leaves 671, and the worke will stand thus.

*Example.*

$$\begin{array}{r}
 67 \\
 955 \\
 78652 \\
 \hline
 86824416 \quad (879 \\
 \hline
 98777 \\
 789693 \\
 898 \\
 88
 \end{array}$$

Fourthly, I remove my Divisor againe, and seeke how oft I may have 9 in 67, and I see I can have it but 6 times, then I put 6 in the quotient, and by it multiply 987, makes 5922, which taken from 6711, leaves 789, and the worke will stand in the example following.

*Example.*

$$\begin{array}{r}
 67 \\
 9558 \\
 786529 \\
 \hline
 86824426 \quad (8796 \\
 \hline
 987777 \\
 7896932 \\
 8988 \\
 892 \\
 59
 \end{array}$$

Lastly,

Lastly, I remove my Divisor againe, and seeke how oft I may have 9 in 78, and I finde I may have it 8 times, which 8 I put into the quotient, and by it I multiply my Divisor 987 makes 7896, equall unto the numbers above; and so being taken away, leaves nothing remaining, and proves the multiplication to bee truly wrought, as appeareth in the example following.

Example.

$$\begin{array}{r}
 67 \\
 9558 \\
 786520 \\
 \hline
 8824426 \quad (87968 \\
 \hline
 9877777 \\
 78969327 \\
 898880 \\
 8920 \\
 509 \\
 78.
 \end{array}$$

*The third example of Division.*

The second kind of Division is this: first, place your dividend and divisor, as in the former Examples, & then having found out the figure of your quotient, begin with the least figure of your divisor towards the right hand first, and multiply that by the figure of the quotient found, and then subtract the

the sum of the multiplication of that figure from the figure above the same, if it exceed not 9; but if the product be above 9, then for every 10 beare one in mind to bee added to the product of the multiplication of the second figure of your Divisor by the quotient; and so in all respects worke for every other figure, and you shall need make no more figures above your Dividend then necessity shall require, as for example.

I would divide the product of the multiplication in the former Chapter of 79648039 by 8976, which was found to bee as followeth, viz. 714920798064 by 8976: first, I place my Dividend and Divisor as followeth.

	<i>Quotient</i>
<i>Dividen.</i>	714920798064 (7
<i>Divisor.</i>	8976.

Then first I seeke how often I may have 8 in 71, I finde by tryall I can have it but 7 times; then having placed 7 in the Quotient, I first multiply 6, the least or smallest figure in value by 7, makes 42: then I say 42 from 42 rest 0, and carry 4 for the forty in minde; then I cancell the 2 over the 6, and place a 0 in the roome over it. Secondly, I say, 7 by 7 is 49, and 4 in mind makes

# Division.

45

53, from 59 leaves 6, and carry 5; cancell the 9 and place 6 over it. Thirdly, 7 by 9 is 63, and 5 in mind is 68, from 74 leaves 6, and carry 7, cancell the 4, and place 6 above it: also 7 by 8 is 56, and 7 makes 63, which taken from 71 leaves 8 remaining, which 8 place over the 1, and cancell the 71, and the first worke will stand thus.

$$\begin{array}{r} 8660 \\ 724920798064 \quad (7 \\ 8976 \end{array}$$

Secondly, I remove my Divisor 8976, and seeke how many times I may have 8 in 86, I find 9 times: then I multiply 6 by 9 placed in the Quotient, makes 54, which taken from 60, leaves 6: place 6 above the first 0, and carry 6 for the 66: then say 9 by 7 is 63, and 6 in mind make 69, from 70 leaves 1, and carry 7 in mind; cancell the 0 over the 7, and place the 1 over the 0. Againe, 9 by 9 is 81, and 7 in mind is 88, which taken from 96, leaves 8 to bee placed above the first 6, and carry 9 in mind: lastly 9 by 8 is 72, and 9 makes 81, which taken from 86, leaves 5 to bee placed above the 6, and the work will stand as followeth.

Ex

Example.

$$\begin{array}{r}
 581 \\
 86666 \\
 724920798064 \text{ (79} \\
 80766 \\
 807
 \end{array}$$

Thirdly, againe I remove my Divisor, and seeke how many times 8 is in 58, and I find I can have it but 6 times, which I place in the Quotient: then I say, 6 by 6 makes 36, from 37 leaves 1 above 7, and carry 3: then 6 by 7 is 42, and 3 is 45, from 46 leaves 1, above the 6, and carry 4: againe, 6 by 9 is 54, and 4 makes 58, from 61 leaves 3 above the 1, and carry 6. Lastly, 6 by 8 is 48, and 6 makes 54, from 58 leaves 4, and the worke stand thus, as in the example.

$$\begin{array}{r}
 43 \\
 581 \\
 866661 \\
 724920798064 \text{ (796} \\
 807666 \\
 8077 \\
 80
 \end{array}$$

Fourthly, I remove my Divisor, and seek how oft I may have 8 in 43, and I find but 4 times, I place 4 in the Quotient. Then 4 by 6 makes 24, from 29, leaves 5, and carry 2, set 5 over the 9: then 4 by 7 is 28, and 2 makes



# *Division.*

47

makes 30, from 31, leaves 1, and carry 3. A-  
gaine, 4 by 9 is 36, and 3 makes 39, from 41  
leaves 2, and carry 4. Lastly, 4 by 8 is 32, and  
4 is 36, from 43, leaves 7, and the worke will  
then stand thus.

## *Examples.*

$$\begin{array}{r}
 72 \\
 43 \overline{) 58221} \\
 8660625 \\
 724920798064 \quad (7964 \\
 8976666 \\
 89777 \\
 899 \\
 8
 \end{array}$$

Fifthly, I remove my Divisor, and seeke  
how oft I may have 8 in 72: I find 8 times,  
which placed in the Quotient, I multiply 6  
by 8 makes 48, from 48 leaves 0, and carry  
4: then 8 by 7 makes 56, and 4 is 60; from  
65 leaves 5, and carry 6. then 8 by 9 is 72,  
and 6 makes 78; from 81, leaves 3, and carry  
8: then 8 by 8 makes 64, and 8 is 72, from 72  
leaves 0 remaining, and the work will stand  
thus.

Ex-

Example.

$$\begin{array}{r}
 7 \\
 4323 \\
 58225 \\
 8600650 \\
 774920798064 \quad (79648. \\
 89766666 \\
 897777 \\
 8999 \\
 88
 \end{array}$$

Sixthly, I remove my Divisor, and seeke how oft I may have 8 in 3, which I find not once; I place a 0 in the Quotient, and remove my Divisor one place more, and seeke how many times 8 is in 35; I find I can have it but 3 times, I place 4 in the Quotient beyond the 0 last placed; and say, 3 by 6 is 18, from 26 rests 8, and carry 2: then 3 by 7 is 21, and 2 is 23, from 30 leaves 7, and carry 3: again 3 by 9 is 27, and 3 is 30, from 30 leaves a 0, and carry 3: also 3 by 8 is 24, and 3 is 27, from 35 leaves 8; and the work will stand thus.

Ex-

Example

7  
 43238  
 58xxx507  
 86606x8078  
 7x4920798064 (7964803  
 8976666666  
 89777777  
 899999  
 8888

Lastly, I remove my Divisor, and seeke  
 how oft I may have 8 in 80; I find 9 times, I  
 place 9 in the Quotient, and say, 9 by 6 is  
 54, from 54 leaves 0, & carry 5; then 9 by 7 is  
 63, and 5 is 68, from 68 leaves 0, and carry  
 6: Then 9 by 9 is 81, and 6 is 87, from 87  
 leaves 0 and carry 8: last of all, 9 by 8 is  
 72, and 8 makes 80; from 80 there will re-  
 maine nothing but cyphers, and the worke  
 is quite ended, and will stand, as in the exam-  
 ple following. Example.

7  
 43238  
 58xxx507  
 86606x8078  
 7x4920798064 (796489039  
 8976666666  
 89777777  
 899999  
 8888

D

The

The fourth and last kind of Division, is the most absolute, speedy, and easie, not charging the memory at all, with keeping any numbers in mind; and also the prooffe of your work is made by Addition, and not by multiplication, as hath heretofore beene commonly used, as shall appeare by examples following.

*The third Worke.*

First place your Dividend betweene two parallel lines, and your Quotient at the right side of your Dividend, behind a crooked line, as before; then place your Divisor next to the left hand of your Dividend, behind a perpendicular line: and lastly; marke how many figures your Divisor hath, and in the roome of those figures place Ciphers under the figures of your Dividend, so many as your Divisor hath figures, as in the last example: which I will againe repeate in this place, and worke it by this kind of Division, making the proof of the work by Addition of the same figures.

<i>Divisor.</i>	<i>Example.</i> <i>Dividend.</i>	<i>Quotient.</i>
8976.	714920798064 (	
	0000 71492	

First, I point to the first Cipher towards the

the left hand, and seeke how oft I may have 8, the greatest figure in value of my Dividend, having respect to the other figures of my Divisor, to take them also as often, out of the figures above, and I find I can have it but 7 times, which 7 I place in the Quotient, and by that 7 I multiply my Divisor 8976, saying first, 7 by 6 is 42, place the 2 under the lowest cypher towards the right hand, and carry 4: then 7 by 7 is 49, and 4 is 53, set 3 under the next place to the left hand, and carry 5; then 7 by 9 is 63, and 5 is 68, place the 8 in the next place, and carry 6. Lastly, 7 by 8 is 56, and 6 in mind makes 62, which place downe in their places, and the totall is 62832, to bee subtracted from 71492; and there will remaine 8660; and the worke will stand thus.

Example.

8660

$$\begin{array}{r}
 8976 \overline{) 714920798964} \quad (7 \\
 \underline{00000} \quad 50182 \\
 62832
 \end{array}$$

Secondly, I cancell the first cypher to the left hand, and place one cypher more towards the right hand, under the 0, and then I point againe to the first cypher, and see how oft I may have 8 in 86; I find 9 times, and placing

placing 9 in the quotient, by it I multiply 8976 my Divisor, placing the lowest figure in value under the lowest cypher to the right hand, and the rest in order, and I finde the product to be 80784, which taken from 86600, leaves 5816 remaining, and then your worke will stand, as in this

Example.

$$\begin{array}{r}
 581 \\
 86606 \\
 \hline
 8976 \overline{) 784920798064} \quad (79 \\
 \underline{00000} \\
 \hline
 628324 \\
 8078
 \end{array}$$

Thirdly, I cancell my Divisor, or one Cypher, and place one Cypher more under 7, and then seek how oft I may have 8 in 58, which I find 6 times, and by it I multiply my Divisor 8976 makes 53856, which taken from 58167, leaves 4311, and the work will stand as followeth.

# Division.

53

Example.

$$\begin{array}{r}
 43 \\
 98 \overline{) 1} \\
 866061 \\
 \hline
 8976 \overline{) 714920798064} \quad (796 \\
 \underline{000000} \\
 6283246 \\
 80785 \\
 538
 \end{array}$$

Fourthly, I cancell one Cypher, and place a Cypher under 9, and then seeke how oft I may have 8 in 43, which I find but 4 times, which I place in the quotient, and by it I multiply my Divisor 8976, makes 35904, which taken from 43119, leaves 7215.

Example.

$$\begin{array}{r}
 7 \\
 432 \\
 98 \overline{) 1} \\
 8660615 \\
 \hline
 8976 \overline{) 714920798064} \quad (7964 \\
 \underline{0000000} \\
 \hline
 6832464 \\
 807850 \\
 5389 \\
 35 \\
 D3
 \end{array}$$

Fifthly,

Fifthly, I cancell one cypher, and place a cypher under 8, and seeke how oft 8 is in 72; I find 8 times, which placed in the quotient, I multiply my Divisor 8976 by it makes 71808, which taken from 72158, leaves 350, and the work stands as in the example following.

Example.

$$\begin{array}{r}
 70 \\
 4323 \\
 981113 \\
 8666130 \\
 \hline
 8976 \quad | \quad 724920798064 \quad (796480 \\
 \quad \quad \quad 000000000000 \\
 \hline
 \quad \quad \quad 628324648 \\
 \quad \quad \quad 8078500 \\
 \quad \quad \quad 53898 \\
 \quad \quad \quad 351 \\
 \quad \quad \quad 7
 \end{array}$$

Sixthly, I cancell one cypher, and place another under the 0, and seeking I find I cannot have 8 in 3; therefore I place a 0 in the quotient. Seventhly, I cancell one cypher, and place one other under the 6, and seeke how oft I may have 8 in 35; I finde but 3 times, and placing 3 in the quotient, by it I multiply 8976, makes 26928, which taken from 35006, leaves remaining 8078.

Lastly,



# *Division.*

55

Lastly, I cancell the next cypher, and doe place another under the last figure of my Dividend 4, and seeke how oft I may have 8 in 80; I find 9 times; and then placing 9 in the quotient, I multiply my Divisor 8976, and the quotient is 80784, equall unto the numbers above, and so being subtracted from the numbers above, leaves 0 remaining, and the work is ended, and will stand thus.

## *Example.*

$$\begin{array}{r}
 70 \\
 43238 \\
 5811150 \\
 8660615070 \\
 \hline
 8976 \overline{) 714920798064 (79648039} \\
 \underline{0000000000} \\
 628324648284 \\
 8078500978 \\
 5389860 \\
 35128 \\
 7
 \end{array}$$

*The prooffe* 714920798064

The prooffe of this Division is made by Addition of the figures, under the line or Dividend, for if they returne your former Dividend, the worke is true wrought; or otherwise

D 4



# *Division.*

57

gaine by that 7, I need but take the Product of the first multiplication by 7, which is 12586, and so place them in their severall places; as in the example, and so likewise there is 8 in the quotient two times, so that for the latter multiplication, I take the first product 14384, and save that labour of multiplication of the Divisor by 8: and so of any other figure comming into the quotient more times then once, as by the examples will appeare.

## *Example.*

$$\begin{array}{r}
 775 \\
 48849 \\
 4244628 \\
 118268737 \\
 \hline
 7583 \mid 876593204 \quad (115599 \\
 000000000
 \end{array}$$

$$\begin{array}{r}
 7583 \\
 7583 \\
 37915 \\
 37915 \\
 68247 \\
 68247
 \end{array}$$

The                      876593204                      Proofs.

*Example.*

## Division.

## Example.

$$\begin{array}{r}
 356 \overline{) 7856792} \quad (22069 \\
 \underline{0000000} \\
 7122064 \\
 \underline{71130} \\
 232 \\
 \underline{7856792}
 \end{array}$$

*How to divide by a Unite with Cyphers.*

If you will divide by 10, or by 100, or 1000, or with any other unite with cyphers, one or more; do but cut off so many figures from the right hand of your Dividend, as there are cyphers in your Divisor, and the remaines is your quotient.

## Example.

If you would divide 786589 by 10, cut off the last figure 9, and the residue is your quotient 78658  $\frac{9}{10}$ ; or if you will divide by 100, cut off two figures, and the quotient will be 7865  $\frac{89}{100}$ , or by a 1000, and the quotient will be 786  $\frac{589}{1000}$ ; and so of all other.

First.	Second.	Third.
78658   9	7865   89	786   589
1 0	1 00	100 0
78658 $\frac{9}{10}$	7865 $\frac{89}{100}$	786 $\frac{589}{1000}$

If

If you will divide the Product of 1999 squared; that is to say, multiplyed in it selfe, which is 3996001 by 1999, for expedition of worke, after you have found the first figure of the quotient 1, and taken that out, I find the next figure will bee 9, which taken out, the third and fourth figures are also found to bee 9, and so you need not make multiplication for every severall 9, but the first will serve for all, as in the example following.

Example.

17  
1979  
1997990

---

1999	3996001 (1999
	0000000

---

1999111  
179999  
1799  
17

---

The prooffe of      3996001      this worke.

---

Example.

$$\begin{array}{r}
 89 \\
 6899 \\
 998899 \\
 99989999 \\
 \hline
 99999 \overline{) 99999899999} (99999 \\
 \underline{99999} \\
 8999911111 \\
 89999999 \\
 899999 \\
 8999 \\
 89 \\
 \hline
 9999800001 \quad \text{The Proofs.}
 \end{array}$$

*Brief Rules by Multiplication and Addition.*

If you multiply any number of nines: as if you will multiply, or square 5 times 9 by 5 times 9, then place your nines in this order following.

Example.

$$\begin{array}{r}
 9999900000 \\
 99999 \\
 \hline
 9999800001
 \end{array}$$

Then say, 9 times 9 is 81, place the 1 under the first 9 to the right hand, and then subtract the 1 from the first 9 to the left hand.

hand, and adde the Cyphers betweene, and the product is ended, and is 9999800001, as appeareth.

*The prooffe of the work after the ordinary way.*

$$\begin{array}{r}
 99999 \\
 99999 \\
 \hline
 899991 \\
 899991 \\
 899991 \\
 899991 \\
 899991 \\
 899991 \\
 \hline
 899991
 \end{array}$$

*The prooffe.* 9999800001.

*To multiply any number by 9.*

Adde a 0 to the number you intend to multiply, and then set the same numbers under them, and subtract them from the uppermost, and the remains is the Product of that multiplication by 9.

*Example.*

$$\begin{array}{r}
 87987960 \\
 8798796 \\
 \hline
 \text{The Product. } 79189164
 \end{array}$$

*To multiply by  $\frac{1}{2}$ , or  $\frac{1}{3}$ , or  $\frac{1}{4}$ , or  $\frac{1}{5}$ .*

If you will multiply 856 by 24  $\frac{1}{2}$ , first, multiply 856 by 24, makes 20544; and then for

for one halfe, take halfe 856, which is 428, and adde into the former summe, makes the totall 20972.

*Example.*

856 24 $\frac{1}{2}$	856 24 $\frac{1}{2}$	856 24 $\frac{1}{2}$
3424 17128 42	20544 285 $\frac{1}{2}$	20544 214
20972	20829 $\frac{1}{2}$	20758

What number is that, which being divided by 24, the quotient will bee 856? Answer, multiply 856 by 24, makes 20544 for the number that you seek.

*Example.*

856 24
3424 1712
20544

There is a plot of Land containing 848 Perches, the one side is 24, what must the other be? Answer, Divide 848 by 24, the Quo-



# *Division.*

63

Quotient is  $35 \frac{2}{3}$  for the other side.

$$\begin{array}{r} 22 \\ 848 \overline{) 35 \frac{2}{3}} \\ 244 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 35 \frac{2}{3} \\ 24 \overline{) 140} \\ 708 \\ \hline 848 \end{array}$$

If you will divide the Product of 5 times 9 squared, which is 9999800001, by 5 nines, then set the Divisor right underneath the Dividend, and adde them together, and cut off the 5 cyphers from the Product, and the residue is the Quotient.

## *Example.*

$$\begin{array}{r} 9999800001 \\ 99999 \overline{) 9999800001} \\ \hline \end{array}$$

The Quotient. 99999 00000

What number is that, which being multiplied by 15, the totall will be 756? Answ. divide 756 by 15, and the Quotient is  $50 \frac{2}{3}$ , or  $\frac{2}{3}$ , for the answer, or number you do seek.

*Exam-*

Example.

$$\begin{array}{r} 796 \text{ (} 50 \frac{6}{11} \frac{2}{7} \text{)} \\ 155 \\ 1 \end{array}$$

$$\begin{array}{r} 50 \frac{2}{7} \\ 15 \\ \hline 250 \\ 506 \\ \hline 756 \end{array}$$

There are 825 men, to march 15 in one ranke, how many files will they make. Devide 825 by 15, it makes 55 files.

Example.

$$\begin{array}{r} 825 \text{ (} 55 \text{ files)} \\ 155 \\ 2 \end{array}$$

$$\begin{array}{r} 55 \\ 15 \\ \hline 275 \\ 55 \\ \hline 825 \end{array}$$

There is 948 pound of powder to bee employed in an assault of Battery with 6 pieces of Ordnance; the first piece shooteth 4 pound, the second 5, the third 6, the fourth 7, the fifth 8, the sixth 10 pound, the question is, how many shootes each piece may make, to make an equall number of Shots. Answer, first, find how many pounds of powder all those pieces of Ordnance doe spend, in making each of them one shot: which

# *Division.*

65

which by adding together the number of pounds that each severall peece spendeth will befound to bee 40: Then divide 948 by 40, and it makes 23 Shootes, and there will remaine 28 pound.

## *Example.*

4				23
5	22	Shoots.		40
6	948	(23.		<hr/>
7	440			920
8				28
10				<hr/>
<hr/>				
40				948

THE



# THE RULE OF REDUCTION.

**T**O reduce any great number into a smaller denomination it is done by multiplication, and to reduce small denominations into greater it is done by division: in this manner mark how many of the smaller denominations is contained in one of the next greater, and by that number you must multiply the greater; or the contrary, if you would bring small denominations into greater, marke how many of the smaller denominations make one of the next greater, and that number shall bee your Divisor.

## *Example.*

If you would reduce pounds sterling into pence, multiply your pounds by 240 pence, because so many pence maketh a pound sterling, and the totall will bee the number of pence in the summe of pounds given. And contrariwise, if you would bring pence into pounds sterling: divide your number of pence by 240 pence, which are the pence in one pound, and the Quotient will shew the  
number

number of pounds, in the summe of pence given: but in this operation the Tables in the beginning of this booke wil helpe much, for the speedy reducing of pounds, shillings pence, yards, ells, bushels, pecks, pints, &c. into smaller or greater denominations: for if you search in the said Tables, you shall find your multiplier, or divider, whereby you are to multiply, or divide your number given, to performe the worke, as shall appeare by the severall examples following.

## Reduction of Coyne.

In 87652 pound, how many pence? In the Table of Coyne I find 240 pence makes one pound, so that in multiplying 87652 pound by 240, makes the summe of pence desired.

## 1 Example.

$$\begin{array}{r}
 87652 \\
 \times 240 \\
 \hline
 3506080 \\
 175304 \phantom{0} \\
 \hline
 21036480
 \end{array}$$

## 2 Example.

In 3759 pound 17 shillings, 8, pence, how many shillings, pence, and farthings?

3759

<div>l.</div> <div>3759</div> <div>20</div> <div></div>	<div>q.</div> <div>998</div> <div>72744</div> <div>3609488</div> <div>966660</div> <div>999</div>	<div>l.</div> <div>( 3759</div>
<div>75180</div> <div>17</div> <div></div>		
<div>75197 s.</div> <div>12</div> <div></div>	<div>q.</div> <div>3</div> <div>362 s.</div> <div>848 (17.</div> <div>488</div> <div>4</div>	<div>d.</div> <div>32 (8</div> <div>4</div>
<div>150403</div> <div>75197</div> <div></div>		
<div>902372 d.</div> <div>4</div> <div></div>		
<div>3609488 q.</div>	<div>l.</div> <div>Prooffe. 3759.</div>	<div>s.</div> <div>17.</div> <div>d.</div> <div>8.</div>

## 3 Example.

In 3785437289 farthings, how many pounds, shillings, and pence: divide by 960 farthings, because 960 farthings make one pound sterling, and the remainder is farthings, which divided by 48, the farthings in one shilling, make 3943163 pound, 16 shillings 10 Pence,  $\frac{1}{4}$ .

Example

## Example.

432638	
90205260	
3785437289	li.
966666660	(3943163
999999	20
	<hr/>
	78863276 s.
	12
	<hr/>
q.	157726562
4	78863276
321 s. d.	<hr/>
839 (16. 10 <sup>1</sup> / <sub>4</sub> .)	946359322 pence.
488	4
4	

The prooffe.

3785437289

*How to bring pounds, shillings, and pence  
at the first worke by Division.*

To bring pence at the first worke into pounds, shillings, and pence: adde a 0 to your number of pence, and divide that sum by 240, makes pounds, and the last figure will bee primes, every unite in value 2 shillings, and the remainer alwayes lesse then 24 pence, or one prime.

*Example*

## Example.

In 902372 pence, how many pounds, shillings, and pence; adde a 0, makes 9023720, which divided by 240 pence, makes &c.

$$\begin{array}{r}
 12 \text{ } 2d. \text{ } 20d. \\
 184220 \text{ } 888 \text{ } l. \text{ } s. \text{ } d. \\
 9023720 \text{ } (3759. \text{ } 8. \text{ } \text{or } 17. \text{ } 8. \\
 2444440 \\
 2222 \text{ } l. \text{ } s. \text{ } d. \\
 3759. \text{ } 17. \text{ } 8.
 \end{array}$$

## 2 Example.

In 75000837504 pence, how many pounds, shillings, and pence adde a cypher, or 0.

$$\begin{array}{r}
 2 \text{ } 2220 \\
 3620112340 \text{ } l. \text{ } s. \\
 750008375040 \text{ } (312503489. \text{ } 6. \\
 2444444444440 \\
 2222222222
 \end{array}$$

*How to bring farthings into pounds, shillings and pence at the first worke.*

To bring farthings into pounds, shillings and pence at one worke; adde a 0 to your number of farthings, and divide the summe by 960, the number of farthings in one pound sterling, makes pounds; and the last figure



figure of your Quotient will bee primes every one in value 2 shillings : and if there remaine 48, it is one shilling, or take 48 from the remainder for one shilling, the rest are farthings lesse then 48.

*Example.*

*l. s. d. q.*

In 756. 13. 2. 2. how many farthings.

20

15133 *s.*

12

181598 *d.*

4

726394 *q.*

665 *q.*

54638

*l. s.*

7263940 (756. 6

966660

999

*l. s. q. s. d. ob.*

Totall is 756. 12. 58. or 13. 2. 1.

In 3785437248 farthings, how many pounds, shillings, and pence, adde a 0, and divide by 960, makes 2943163 pound, 8 primes, or 16 shillings, 0 pence.

4386370

901058660

*l. s.*

37854372480 (3943163. 8.

9666666666

9999999

*How*

*How to bring pence into pounds, shillings, and pence another way.*

Divide your number of pence by 4, and the remainder is pence, then that Quotient by 6, and the remainder is groates, alwayes lesse then 6 groates, or one prime, or 2 shillings; and the latter Quotient, cutting off your Primes, is pounds, and so you have pounds, shillings, and pence.

*Example.*

In 785697 pence, how many pounds, shillings, and pence, it makes 3273 pounds, 4 shillings, 9 pence.

322621	d.	24242	groats.	l.	s.
785697	(	296424		(3273	7
444444		66666			

If you will bring farthings into pounds, shillings, and pence: divide first by 16, and the remainder is farthings, alwayes lesse then 16, or one groate; and then againe by 6, makes pounds, shillings, and pence, as before, cutting off the prime line.

*Example*

## 78

In 8735672 farthings, how many pounds, shillings, and pence.

**Fortbings.**

2 1

**Groats.**

91258

1533

2.

8735672 (545979 (909616

2056666 66666

PPPPPP

The totall is 9099 l. 13 s. 2 d.

In 8756 hundred, 3 quarters, 24 pound, 12 ounces Haberdepoise 16 ounces to the pound, and 112 pound to the hundred, how many pounds and ounces.

	C.	quart.	l.	ounces.
8756.	3.	24.	12.	
112	$\frac{28}{14}$	$\frac{84}{12}$		

8756. <sup>1</sup>3. 24. 12.

112

2/2 34  
4/3 1/3

17512

87568

87560

I

980780

16

588463e

980780

12

980780 pounds ounces. 15692492

E

In

In 15692492 ounces Haberdepoyse, how many hundreds, quarters, pounds, and ounces; finde how many ounces makes 112 pound, in multiplying 112 pound by 16 ounces, makes 1792 ounces; by which divide, makes, as in the example following.

Example.

$$\begin{array}{r}
 217 \\
 \times 2024 \\
 \hline
 2386040 \quad \text{C.} \quad 212 \quad \text{l.} \quad \text{oun.} \\
 25592492 \quad (8756 \quad 2740 \quad (108 \quad 12 \\
 2792222 \\
 27999 \\
 277 \\
 \hline
 \end{array}$$

---

	C.	qu.	l.	oun.
The prooffe.	6756	3.	24.	12

---

Reduction of Measures:

In 2356 Acres, 3 Roodes, 27 Perches, how many Perches in all.

Example

# Reduction.

75.

## Example.

2 3 5 6			
1 6 0			
1 4 1 3 6 0	x 1		Per. rood.
2 3 5 6 4 7	5 9 4	acres.	2
1	3 7 7 1 0 7	( 2 3 5 6	x 4 7 ( 3
	x 6 6 6 6 0		4 0
	x x x		
3 7 7 1 0 7			

	Acres.	Perches.	Roodes.
The Proofs.	2 3 5 6	3	2 7

In 7 6 5 4 3 7 Perches, how many Acres, Roodes, and Perches : divide by 160.

## Example.

x x			
x 2 3 6 5	Acres.	3	roods. perch.
7 6 5 4 3 7	( 4 7 8 3	x 5 7	( 3 3 2
x 6 6 6 6 0		4 0	
x x x			

E 2

Reduction

*Reduction.**Reduction of time.*

In 356 yeares, 24 dayes, 36 houres, and 22 minutes; how many dayes, hours and minutes.

*Example:*

356  
365

---

1780  
21364  
10682

---

129964 *dayes.*  
24

---

519856  
2599286  
3

---

3119172 *Houres.*  
60

---

187150320  
22 *Minutes.*

---

*Total of* 187150342 *Minutes.*

*The*

## The Proofs.

In 187150342 minutes, how many houres,  
dayes, yeares, and minutes.

## Example.

Minuties.	Houres.	Dayes.
187150342	3222	
287250342	733936	
66666660	(3220272	(129964
	2444444	
	22222	

Dayes.	Yeares.
222	
2042	
229964	(356
36999	
366	

---

Yeares. Dayes. Houres. Minutes.  
The profe is 356 24 36 22.

---

## Reduction of Motion.

In 11 Signes, 34 degrees, 25 minutes, 36 seconds, 24 thirds; how many fourths.

Example.

Sign.	Degr.	Min.	Sec.	Thirds.	
11.	34.	25.	36.	24	
			364	Deg.	11 Sig.
			60		30
					330 deg.
					34
		21840	Min.		
		25			364

Minutes 21865  
60

Seconds 1311900  
36

Seconds 1311936  
60

78716160  
24

Thirds 78716184  
60

Fourths. 4722971040 Product Totall.

The



The prooffe.

In 4722971040 fourths, how many signes, degrees, minutes, seconds, thirds, & fourths.

Example.

<i>Fourths.</i>	<i>Thirds.</i>	<i>Seconds.</i>
5403252	x 25232	
4722971040	(78726284	(1311936
66666660	666660	

<i>Seconds.</i>	<i>Minutes.</i>	<i>Degrees.</i>
253336	322	
2322536	(22865	(364
666660	6660	

<i>Degrees.</i>	<i>Signes.</i>	<i>Deg.</i>	<i>Minut.</i>	<i>Seconds.</i>	<i>Thirds.</i>
364	(12.	4.	25.	56	24.
330	<i>The Prooffe.</i>				

Questions by Reduction.

1. Question.

In 389 pound Sterling; how many Dollars of 4 shillings 8 pence, or 14 groates a piece. Reduce 389 pound into groats, in multiplying them by 60, makes 23340 groats: which divide by 14 groats, makes 1667 dollars, and 8 pence.

E 4

Example

## Example.

Groats.

$$\begin{array}{r}
 \text{l.} \\
 389 \\
 60 \\
 \hline
 23340
 \end{array}$$

$$\begin{array}{r}
 \text{l.} \quad \text{s.} \quad \text{d.} \\
 9902 \\
 23340 \quad (1667. \quad 0. \quad 8. \\
 \hline
 23340 \\
 222
 \end{array}$$

## 2 Question.

In 300 pound sterling, how many angels at a 11 shillings a piece. Reduce 300 pound into shillings, makes 6000 shillings; which divide by a 11, makes 545 angels, and there will remaine 5 shillings.

## Example.

$$\begin{array}{r}
 \text{l.} \\
 300 \\
 20 \\
 \hline
 6000
 \end{array}$$

$$\begin{array}{r}
 565 \text{ angels.} \quad \text{s.} \\
 6000 \quad (545. \quad 5. \text{ Rest.} \\
 \hline
 5995 \\
 5
 \end{array}$$

## 3 Question.

In 3012 pound, how many Ryals of plate at 7 pence a Ryall. Reduce 3012 pound into pence, makes 722880 pence; which divided by 7, makes, as in the example.

• Exam-

# Reduction.

81

1.

Example.

3012

240

Pence.

2464

Ryalls.

d.

120480

722880

(103268.

4.

6024

777777

722880

Pence

## 4 Question.

If one Dollar be worth 4 shillings 8 pence, how many Dollars is in 108579 pound, 16 shillings sterling. Multiply your pounds by 60, makes 6514740; then reduce 16 shillings into groates by 3, makes 48 groates; which added into one totall, makes 6514788, which divided by 14, makes, as in the example.

Example.

Pounds.

108579

60

Shillings.

16,

3

6514740

48

48

Groats.

6514788

070520

Dollars.

6524788

(465342

2444444

22222

E5

In

In 465342 Dollars of 14 groats a peece, how much sterling money: multiply your Dollars by 14, makes 6514788 groates; which divide by 60, makes 108579 pound, 16 shillings.

*Example.*

465342	14	Groates.	
1861368		3454	l. s.
465342		6514788	( 108579. 16
6514788		6666660	

*5 Question.*

If I receive 8060 French Crownes at 6 shillings a peece in France, how much Sterling must I pay for them at 6 shillings, 1 penny a peece: multiply 8060 by 73 pence, the number of pence in one French Crowne, makes 588380 pence: which divided by 240 pence, makes 2451 pound, 11 shillings, 8 pence.

*Example*

## Example.

$$\begin{array}{r}
 8060 \\
 73 \quad \times \\
 \hline
 24180 \quad \times 0214 \\
 56420 \quad 988380 \\
 \hline
 588380 \quad 244440 \\
 \quad \quad 222
 \end{array}$$

Pound. (2451

Pence.

$$\begin{array}{r}
 28 \quad s. \quad d. \\
 240 \quad (11. \quad 8. \\
 222 \\
 \times
 \end{array}$$

## 6 Question.

If 564 yards of cloth cost 124 pound, 12 shillings, how may I sell a yard to gaine 22 pounds, 7 shillings, by the whole Summe? Answer, adde 22 pound, 7 shillings, to 124 pounds, 12 shillings, makes 146 pound 19 shillings: which reduce into pence, makes 35268 pence: which divided by 564, makes 5*s.* 2*d.*  $\frac{1}{47}$  of a farthing for the price to sell one yard, for to gaine 22 pound 7 shillings by the bargain.

Exam.

*Reduction.**Example.*

	l.	s.
	146.	19
	20	
l.	s.	
124.	12.	
22.	7.	
146.	19.	

2939
12
5878
2939
35268

3	
80	
2020	d.
35208	(62. $\frac{100}{117}$ )
5044	
56	

*7 Question.*

If 156 ells of cloth cost 124 pound, what will one ell cost? Reduce 124 pound into shillings, makes 2480 shillings; which divide by 156, makes 15 shillings, 4 pence  $\frac{22}{117}$ .

*Example.*

124	024	s.
20	2480	(15 $\frac{140}{117}$ of a shilling.)
	2560	
	88	
2480		

8 Que-

## 8 Question.

If I sell 342 yards of Velvet for 241 pound, 17 shillings, how doe I sell one yard? Reduce your 241 pound, 17 shillings, into shillings, makes 4837 shillings; which divided by 342 yards, makes 14 shillings, 1 penny,  $\frac{43}{37}$  of a penny.

Example.

l.	s.			
241.	17	4		49
20		1419	s.	12
4837		4837	(14 $\frac{43}{37}$ )	98
		3422		49
		34		588
				s. d.
246	d.			
588	(1 $\frac{43}{37}$ of a penny, makes 14. 1. $\frac{43}{37}$ d.			
342				

## 9 Question.

A certaine Nobleman sent his servant to the Tower of London, with the Kings Majesties Warrant to the Mint-master for 3408 pound, 15 shillings, willing him to bring it in pieces of 12 d. of 9 d. of 6 d. of 3 d. of 2 d. of 1 d. of 1 ob. commanding him to bring him of each sort a like quantity, or number of pieces; the question is to know, how many of each sort he shall bring unto his master, to make the said sum of 3408l.

15 s.

15 s. Reduce your money into half pence, and also your severall pieces of Coyne into halfe pence, and divide the greater by the lesser, as in the example.

Example.

$$\begin{array}{r}
 \text{L.} \quad \text{s.} \\
 3408. \quad 15. \\
 20 \\
 \hline
 68175 \\
 24 \\
 \hline
 272700 \\
 136350 \\
 \hline
 1636200
 \end{array}$$

$$\begin{array}{r}
 27 \\
 29846 \text{ Pieces.} \\
 1636200 \left( 24420 \frac{50}{67} \right. \\
 677777 \\
 6666 \\
 \hline
 12 \text{ d.} \\
 9 \\
 6 \\
 3 \\
 2 \\
 1 \text{ ob.}
 \end{array}$$

67

What



# What Progression Arithmetically is, and the Rule.

**P**ROgression Arithmetically is nothing else but a brieve summing, collecting, or gathering together of divers numbers, increasing by equall proportion, into one totall summe. As for example: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, &c. or 3, 4, 5, 6, 7, 8, &c. or, 2, 4, 6, 8, 10, 12, &c. or else by 3, as, 5, 8, 11, 14, 17, 20, 23, 26, &c. or of all such like kinds of Progression, which doe increase equally by 2, 3, 4, 5, or 6, or any other greater increase, and such kind of Progression is called, Arithmetically.

## 2. To finde the summe of a Progression.

Marke first how many severall places there be in your Progression, and note that downe; then adde the first number of the Progression to the last: then multiply halfe those two numbers by the whole number of the places, or else halfe the number of the places, by the whole number of the first and last terme added into one summe, and both wayes will produce the totall summe of that Progression.

*Example.*

## Example.

There is a Progression beginning at 4, and is continued unto 44, increasing by 4. First, set downe the numbers of that Progression, beginning at 4, and ending at 44.

Termes. 4. 8. 12. 16. 20. 24. 28. 32. 36. 40. 44.

Places. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

Here the first terme is 4, and the last terme is 44, which added together, makes 48, the one halfe which is 24, multiplied by a 11, the whole number of places makes 264 the totall.

## Example.

44		44
4		4
<hr/>		<hr/>
48	48	48
11	52	
<hr/>	<hr/>	<hr/>
48	240	24
48	24	11
<hr/>	<hr/>	<hr/>
528	264	24
<hr/>		<hr/>
264		24
<hr/>		<hr/>
		264

## First Question.

A certaine man gave to his daughter in  
mar.

marriage the first day of *January* 1 pound, and the second day 2 pound, the third day 3 pound, and so increaling every day 1 pound, untill 31 dayes were expired; the question is, what he should receive in the whole sum. First, 31 dayes is the number of places, and 31 pound is the last payment: adde the 1 term 1 to the last terme 31, makes 32; which multiplied by 15 one halfe, which is halfe 31; or take 31 and halfe 32, and the product will be the totall sum of his wives portion.

Example.

$$\begin{array}{r}
 32 \\
 15 \frac{1}{2} \quad 31 \\
 \hline
 480 \quad \quad \quad 1. \\
 16 \quad 186 \text{ makes } 496 \text{ totall.} \\
 \hline
 496 \quad 31 \\
 \hline
 496
 \end{array}$$

*How to find the latter term of a Progression.*

If you would know the latter terme of a Progression of 100 termes, increasing by 3, and beginning at 10; take one terme from 100 termes, and there will remaine 99, which multiply by 3 the excesse or difference of the increase, makes 297; to the which if you adde

adde the first terme 10, makes 307 for the 100 terme of that Progression.

2 Example.

$  \begin{array}{r}  100 \text{ termes.} \\  1 \text{ Subtract.} \\  \hline  99  \end{array}  $	$  \begin{array}{r}  99 \text{ termes.} \\  3 \text{ Excesse.} \\  \hline  297 \\  10 \text{ first terme.} \\  \hline  \end{array}  $
---	---

307

Or otherwise take the Excesse 3 from the first terme 10, and there will rest 7, which note apart, then multiply the number of places 100 by the excesse 3, [makes 300; to which adde the 7, makes 307, as before.

Example.

$  \begin{array}{r}  10 \\  3 \\  \hline  7  \end{array}  $	$  \begin{array}{r}  10 \\  3 \\  \hline  307  \end{array}  $
---	---

Second Question.

A certaine Merchant bought 78 pieces of Exeter Carries, to pay 2 shillings for the first piece 4 shillings, for the second 6 shilling, for the third 8 s. and so forth increasing his price unto 78 pieces, 2 shillings in every piece; the question is, what the Clothier had for his Carseys.

First, finde the latter terme; taking one from

from 78, makes 77; which multiply by 2, makes 154; to which add the first terme 2, makes 156 for the 78, or last terme: then add 2, the first terme, to 156, the last, makes 158, which multiply by 39, half of the number of places, makes 6162 shillings for the summe of money, the Clothier shall receive for his 78 Carleys.

*Example.*

$\begin{array}{r} 78 \\ \times 1 \\ \hline 77 \\ \times 2 \\ \hline 156 \end{array}$	$\begin{array}{r} 156 \\ \times 2 \\ \hline 158 \\ \times 39 \\ \hline 1422 \\ \times 474 \\ \hline 6162 \text{ s.} \\ \text{or } 308 \text{ l. 2 s.} \end{array}$
--	--

*To find the number of termes.*

There is a Progression, whose first terme is 2, the last terme 156, and the excesse was 2, I would find the number of termes.

Subtract the first terme from the last, and divide the remainder by the excesse, the quotient is the number of termes, wanting but one. Example: 2, the first terme from 156, the last leaves 154, which divided by 2, makes

makes 77, to which adde 1, makes 78, the number of terms.

$$\begin{array}{r}
 156 \\
 \hline
 2
 \end{array}
 \qquad
 \begin{array}{r}
 x \\
 x54 \text{ (77} \\
 \hline
 22 \quad 1 \text{ The number of Terms.}
 \end{array}$$

15.4

78

*How to find the Excesse, or difference.*

Subtract the first terme from the last, and divide the remainer by one lesse, then the number of the Termes, and the Quotient will bee the Excesse or difference.

*Example.*

Subtract 10 the first terme, from 307 the last terme, there will remaine 297, which divide by 99, one lesse then the number of termes, which are 100, makes 3 the excesse.

$$\begin{array}{r}
 307 \\
 \hline
 10
 \end{array}
 \qquad
 \begin{array}{r}
 00 \\
 297 \text{ (3 the Excesse.} \\
 \hline
 99
 \end{array}$$

297

*To find any middle Terme.*

Subtract a unite from the number of the terme you would know, and multiply the remainer by the difference, and to that product adde the first term, and the totall is the term you doe seek.

Ex-

*Example.*

To finde the 30 terme in the last example of 100 termes, subtract 1, rests 29; which multiply by 3, the Excesse makes 87; to which adde the first terme 10, makes 97 for the 30 terme of that Progression.

	<i>Example.</i>			
30	1	10	11 40	21 70
1	2	13	12 43	22 73
<hr/>	3	16	13 46	23 76
29	4	19	14 49	24 79
3	5	22	15 52	25 82
<hr/>	6	25	16 55	26 85
87	7	28	17 58	27 88
10	8	31	18 61	28 91
<hr/>	9	34	19 64	29 94
97	10	37	20 67	30 97

*How to find what number shall begin and finish a Progression.*

To the number of termes adde one, which multiply by halfe the number of terms, and by the Product divide the summe of the Progression, and the quotient will bee the first term, and excesse of that Progression.

*Example.*

At 16 payments 353 pound, 12 shillings is to bee paid, the question is, what number must begin and continue the progression.

First,

First, the money 7072 shillings; then to 16, the number of termes, add 1, makes 17; which multiply by 8, halfe the number of termes makes 136 for Divisor; by which divide 7072, and the quotient is 52 shillings for the first payment and excesse, and by the same the other payments are found.

Example.

l. s.				
353.	12	2	s.	17
	20	7072	(52	8
<hr/>		1366		<hr/>
7072		13		136

Example.

	Nu	The Proofs.		nu.
52	1		468	9
104	2		520	10
156	3	1872	572	11
208	4	5200	622	12
260	5	<hr/>	676	13
312	6	7072s.	728	14
364	7		780	15
416	8		832	16
<hr/>			<hr/>	
1872			5200	



*Of continuall proportion, or Geometricall Progression.*

**T**Wo termes being given to find out a third in continuall proportion.

Divide the *Quadrat*, or Square of the second terme by the first terme, and the quotient shall be the third proportionall number or terme sought for.

*Example.*

Let 8 and 12 bee the two termes given, unto which it is required to find a 3<sup>d</sup> terme or number in continuall proportion.

The *quadrat* or square of the second terme 12 is 144, which being divided by the first terme 8, the quotient will bee 18 for the third proportionall, or terme required.

*To find a Meane proportionall betweene any two numbers, or extreames given.*

Multiply the extreames given the one by the other : then extract the square root of the *Product* for the meane proportionall sought for.

*Example.*

Let 4 and 9 bee the two numbers or extreames given, and let it bee required to find a Meane, or middle proportionall betweene them. Multiply 4 by 9, the *Product* will be 36, the square root whereof is 6, which is  
the

the meane proportionall betweene 4 and 9 the extreames given.

Betweene 2 and 54, let 2 meane proportionals be desired by the square of 2, which is 4; multiply 54, it makes 216, the Cube roote whereof is 6 for the least of the two Meanes: againe, by 2 multiply 216, which is the square of 54, makes 5832, of which the Cube roote is 18, for the greater meane proportional sought.

*To find any middle Terme, or any other Terme in a Geometricall Progression.*

Increase your Progression by the excesse, and the square of the terme when you cease, or the number multiplyed in it self squarely is the double of your terme save 1, if the progression begin with an unite.

But if the first terme be not an unite, then the square of any terme is the double number of the said terme: as if you should square the sixth terme, then the Product would bee the 12 term: and so of any other term.

*Example.*

A Gentleman comming into a Market to buy a Horse, was asked 30 pounds for him. Nay (said the Gentleman) his price is over great. Then said the owner (having more craft and subtilty then the Gentleman, as  
com-

commonly the old Proverbe is true amongst Horſe-courſers) ; My Gelding hath ſowre ſhoes upon his ſowre feet (quoth hee,) you ſhall give me for the firſt nayle (there being 28 in all) one farthing, and for the ſecond nayle 2 farthings, and for the third 4 farthings, and for the fourth 8 farthings; and ſo double at every nayle, you ſhall have him. Whereat the Gentleman ſmiled, ſaying ; I will have him. And ſo they bargained, and then went to an Arithmetician to caſt up the ſum ; but how this Gentleman was able to pay for this Horſe, ſhall appeare by the Worke, which I have put for an example, becauſe I would not have any man ignorant in Arithmetick, to make any ſuch blind matches without advice, as I know many have done to their coſt.

*1 Example.*

Now according to the rule, I increaſe this Progreſſion unto the 7 Terme thus, 1, 2, 4, 8, 16, 32, 64; which 64 I multiply by it ſelfe ſquarely, the Product is 4096, which by the rule is the 13 Terme, which is 1 Terme leſſe then the double of 7 : then multiply that 4096 by 2, it makes 8192, which is the 14 Terme. Then multiply 8192 by 8192, and the Product is 67108864, which is the 27

F

Terme :

**Terme:** the which being doubled, makes the last term 134217728.

*Example.*

$  \begin{array}{r}  64 \\  64 \\  \hline  256 \\  3 \overline{) 84} \\  \hline  4096 \\  2 \\  \hline  8192  \end{array}  $	$  \begin{array}{r}  8192 \\  8192 \\  \hline  16384 \\  73728 \\  8192 \\  65536 \\  \hline  67108864 \\  2 \\  \hline  134217728  \end{array}  $
--	--

*The Extreames and Excesse of a Progression given to find the summe.*

Multiply the last terme by the Excesse, and from the Product abate the first Terme, and divide the remainer by a Unite lesse then the excesse, and the Quotient is the summe of the Progression desired.

*Example.*

In the last examples, the excesse was 2, by which I multiply 134217728, and the Product is 268435456, from which abate 1, the first terme, and the remayner is 268435455; which

which should bee divided by one unite lesse then the excesse, which is 2, and 1 lesse is but 1; therefore seeing 1 doth neither multiply nor divide, I conclude the price of the horse to bee 268435455 farthings; which I divide by 960, the farthings in one pound sterling, and the quotient is 279620 pound, 5 shillings, 3 pence, 3 farthings, the price of the horse, as in this example.

*Example.*

1 3 4 2 1 7 7 2 8

2

---

2 6 8 4 3 5 4 5 6

1 farthing.

---

2 6 8 4 3 5 4 5 5

Farthings.

952

26299263

l.

s.

2684354550 (279620.

2.

066666666

000000

l.

s.

d.

q.

Total.

279620.

5.

3.

3.

I have inserted in the next page the tryall of this work, by increasing the Termes from 1 to 28, and also the addition of the totall, which shews the answer to be true.

F 2

Ex.

Example.

1	1
2	2
4	3
8	4
16	5
32	6
64	7
128	8
256	9
512	10
1024	11
2048	12
4096	13
8992	14
16384	15
32768	16
65536	17
121072	18
262144	19
524288	20
1048576	21
2097152	22
4194304	23
8388608	24
16777216	25
33554432	26
67108864	27
134217728	28

---

The total 268435455

Otherwise, subtract the first terme from the last, and divide the remainder by one ace lesse then the Excesse, and to the Quotient adde the last Terme, and the totall is the summe.

*Example.*

To 12 men a summe of money is given, to the eldest  $\frac{1}{2}$ , to the second  $\frac{1}{3}$ , the remayner, and so to every one of the rest, and the last portion was found to bee 4 pound, and the last halfe being also 4 pound, was given to a friend to see the money to bee equally distributed; what was each mans portion, and the summe given?

Let 4 bee the last portion, and twelfth Terme, and so double untill you come to the first Terme, and you shall finde every mans portion. Then by this second-rule, you shall find the totall to be 16380 pound, to which adde the Executors part 4 pound, makes 16384 pound.

*3 Example.*

A Gentleman bought a Mannor, with all the appurtenances for a summe of money unknowne, but hee was to pay at severall dayes of payment, by continuall triplation, of every payment, from the first payment which was 4 pound, and the last 8748  $\frac{1}{2}$ . the  
[ question

question is, what he paid for the said Mannor and Lands.

*Example.*

Subtraſt the firſt terme 4, from the laſt terme 8748, there will remaine 8744; which divide by the Exceſſe one leſſe, viz. by 2, and the quotient will be 4372: to the which adde the latter terme 8748, and the totall is 13120 pound, for the ſumme which the ſaid Mannor and lands coſt.

$$\begin{array}{r}
 8748 \\
 \underline{4} \\
 8744
 \end{array}
 \qquad
 \begin{array}{r}
 2 \\
 8744 \quad (4372 \\
 \underline{2222} \quad 8748 \\
 13120
 \end{array}$$

*Fractions.*

**Y**OU ſhall underſtand that in the worke of Fractions hereafter; in the next page following I have uſed another forme of working, then heretofore hath been uſed: as when you will ſet forth any fraction, as  $\frac{3}{4}$  thus heretofore uſed, ſet them out thus, 3:4: or  $\frac{7}{8}$ , place thus 7:8 with a double prick between them: and ſo of any other, as  $\frac{15}{20}$  of a pound, thus 15:20 of one pound: or fractions of fractions, thus  $\frac{2}{3}$  of  $\frac{3}{4}$  of  $\frac{5}{6}$  of a pound, ſet them thus, 2:3 of 3:4 of 5:6 of a pound: and



and so of all other fractions, as shall appear afterward in the operations following; and so being placed, they are more apter and fitter for all the severall operations of Arithmetick, then being placed after the ordinary forme of working. And thus much I thought good to expresse for the better understanding of the Rules hereafter following, in all fractionall operations. And now I will proceed unto the severall rules of Fractions with their Examples.

*How to reduce Fractions of Fractions.*

*First Rule.*

Multiply their Numerators one into another for a new numerator, and likewise their Denominators for a new denominator, and the worke is ended.

*Example.*

If you would reduce 3:4 of 2:3 of 7:8 of one *li.* sterling; multiply 3 by 2 makes 6, and then 6 by 7 makes 42 for the new numerator to your fraction; then 4 by 3 makes 12, and 12 by 8 makes 96 for new denominator, and the fraction is 42:96 of a pound.

3:4 of 2:3 of 7:8 of 1 *li.* makes 42:96 of a *li.*

F 4

2 *Exam-*

## 2 Example.

Again, 3:5 of 9:8 of 7:10 of 11:12 of a pound, makes 2079:4800.

$\begin{array}{r} 3 \\ 9 \\ \hline 27 \\ 7 \\ \hline 189 \\ 11 \\ \hline 189 \\ 189 \\ \hline 2079 \end{array}$	$\begin{array}{r} 8 \\ 5 \\ \hline 40 \\ 10 \\ \hline 400 \\ 12 \\ \hline 4800 \end{array}$
---	---

## 3 Example.

What is 1:2 of 2:3 of 3:4 of 4:5 of 5:6 of 6:7 of one pound. Answer, crosse al the by a equall termes, and set the unequall termes 3:7 of a pound for the totall summe: but after the other forme of worke, it would have brought out 720:5040 of a pound, which by abbreviation makes 1:7

## The Prooffe.

72:504, 36:252, 18:126, 9:63, 3:21, 1:7.

2. Rule.

2. Rule. How to reduce Fractions  
of Integers.

Multiply all the Denominators of your severall fractions for the new, or common Denominator to all your given fractions.

Then to find new Numerators to each of your given fractions; multiply each fractions numerator into the denominators, of each severall fraction, excepting his own denominator, for the new numerators, as in this example.

Example.

If you would reduce  $3:4$  and  $5:6$  and  $7:8$  of a pound into one Denomination: multiply all the denominators together, saying; 4 by 6 makes 24, and 24 by 8 makes 192 for the common Denominator to all the given Fractions.

Then multiply 3, the Numerator of the first fraction, by 6, the Denominator of the second fraction makes 18, and 18 by 8 makes 144 from his numerator.

Secondly, multiply 5, the numerator of the second fraction by 4 and 8, the Denominators of the other 2 fractions, makes 160 for the new Numerator of the second fraction.

Thirdly, multiply 7, the numerator of the third fraction, by 6 and 4, makes 168.

F 5

Example

## Example.

	N.D.	18	20	42	144
144	3:4	8	8	4	160
160	5:6	—	—	—	168
168	7:8	144	160	168	—
					192
192					

The total, 472:192.

## 2 Example.

If you would reduce 2:3, and 3:5, and 8:9 of a pound.

N. D.		N.D.	
90. 2:3		7:10	1365
81. 3:5	Also,	10:15	1300
120 8:6		11:13	1610
135		1950	

## 3 Example.

If you would reduce 7:8, 1:3, 2:3, 4:5, and 6:7 of a pound.

N.D.			
2205 7:8			
840 1:3	40.	1:2	40
1680 2:3	70.	7:8	70
2016 4:5	48.	3:5	48
2160 6:7			
3520		80	158

**How to prove a Fraction by the knowne parts of Coyne.**

In the first example of fractions of fractions, I find that 3:4 of 2:3 of 7:8 of a pound Sterling to bee 42:96 parts of a pound; for triall whereof take 7:8 of a pound, which 17 shillings 6 pence, or 210 pence, the 2:3 of that number is 140 pence; and 3:4 of 140 pence is 105 pence; now multiply 42 the numerator of your fraction by 240 d. and divide by 96, the Denominator, makes 105 pence, the prooffe, as followeth.

**4 Example.**

s. d.
17. 6
12
<hr/>
34
176
<hr/>
210

210 (70
33 2
<hr/>
140

d.
140
70
35
<hr/>
105 d.

42	
240	
<hr/>	
1680	
84	
<hr/>	
10080	

40
10080 (105 d
9600
00

4 Ex.

## 2 Example.

In the first Example of fractions of integers, there was 3:4, 5:6 and 7:8 of a pound, reduced into one denomination, and the totall by addition was 472:192 of a pound. Now for the prooffe of the worke, multiply the numerator 472 by 240, makes 113280; which divided by 192 the denominator, makes 590 pence; which divided by 12 pence makes 2 pound, 9 shillings, 2 pence. The prooffe of this tryall in the parts of a pound, take first for 3:4 of a pound, or 15 shillings; then 5:6 of a pound is 16 shillings 8 pence; also 7:8 of a pound is 17 shillings 6 pence; & the totall added together, is 2 pound, 9 shillings, 2 pence, which proves the work to be true.

## Example.

$$\begin{array}{r}
 472 \\
 240 \\
 \hline
 18880 \\
 944 \\
 \hline
 \end{array}$$

$$113280$$

d.

$$122$$

s. d.

$$15. 0$$

$$16. 8$$

$$1590 (492. 17. 6$$

$$222$$

$$2$$

$$2. 9. 2$$

3 Rule

3 Rule. Addition in Fractions.

If your fractions be of one denomination, then adde all your numerators together, subscribing the common denominator under the line.

Example.

2:4	3:12	32:8
5:4	8:12	17:8
3:4	11:12	13:8
7:4		
<hr/>	<hr/>	<hr/>
17:4	22:12	62:8

The second Rule.

If your fractions bee not of one denomination, then reduce them by the second rule of Reduction to one denomination, and then adde them into one sum subscribing under the common denominator.

Example.

40	2:3	1440	24:12
45	3:4	836	13:10
48	4:5	2040	17:6
<hr/>			
133	60	4316	720

If you would adde 40:80, 30:200, and 50:90; cut off a Cypher from each numerator and Denominator, and the Fractions remain-

maining will bee of the same with the given fractions, and then worke as before.

*Example.*

730	4:8	48	30:40
216	3:20	192	60:20
800	5:9	56	70:80
1736	1440	296	64

*The prooffe of Addition by parts  
of Coyne.*

In the second Example, 2:3, 3:4, and 4:5 of a pound, are found to be 133 60; therefore divide 133 by 60, makes 2 pound and 13:60 or 13 groats remaining, which is 2 pound, 4 shillings, 4 pence.

The prooffe: adde 2:3 of a pound, which is 13 shillings, 4 pence; and 3:4 of a pound, which is 15 shillings, and 4:5 of a pound which is 16 shillings, into one totall, makes 2 pound, 4 shillings, 4 pence, as before.

*Example.*

Groat.				s.	d.
1.	l.	s.	d.	13	4
233	(2	4	4	15	0
60				16	0
				l.	
				3.	4 4

4 Rules.



Rule 4. Subtraction in fractions.

As before in Addition, so also in subtraction, reduce your fractions to one common denomination, then subtract the smaller numerator from the greater, and subscribe the common denominator under the remainder.

1 Example.

If you will subtract  $3:4$  from  $7:4$ , there will remain  $4:4$ , or one integer.

Also,  $7:12$  from  $13:12$ , leaves  $6:12$ , or  $1:2$  remaining. But if you will subtract  $2:3$  from  $7:8$ , then reduce them to one denomination, by the second rule of Reduction, and worke, as in this example.

Example.

$3:4$	$7:12$	$16$	$2:3$
$9:4$	$13:12$	$21$	$7:8$
<hr/>			
$4:4$	$6:12$		$5:24$

2 Example.

Againe,  $3:8$  from  $15:16$ , leaves  $72:128$ , remaines.

$120$	$15:16$
$48$	$3:8$
<hr/>	
$72:$	$128$
<hr/>	

The

*The prooffe of Subtraſtion by the parts  
of Coyne.*

In the example before, where I take  $2:3$  from  $7:8$ , the remainer was  $5:24$  of a pound, which is 5 times 10 pence, or 4 ſhillings 2 pence. Alſo for prooffe, take 13 ſhillings 4 pence, which is  $2:3$  of a pound, from  $7:8$ , which is 17 ſhillings 6 pence, there will remaine 4 ſhillings 2 pence, as before.

*5 Rule. Multiplication in Fractions.*

Multiply Numerator by Numerator, and Denominator by Denominator, to make the new Numerator, and new Denominator, and the worke is ended.

*1 Example.*

If you will multiply  $2:3$ , by  $3:4$ , the product of that multiplication will bee  $6:12$ , or  $1:2$ .

6	15	2520
2:3	5:7	35:60
3:4	3:4	72:120
12	28	7200 or 252:720

*The prooffe of Multiplication by the  
parts of Coyne.*

In the firſt example,  $2:3$  is multiplied by  $3:4$ , and the product makes  $6:12$  of a pound  
or

or 10 shillings : for prooffe whereof multiply 13 shillings 4 pence, or 160 pence, which is 2:3 of a pound by 15 shillings, or 180 pence, which is 3:4 of a pound, and the Product will be 28800, which being divided by 240 pence, the pence in one pound will yeeld in the quotient 120 pence, or 10 shillings.

*Example.*

s.	d.		
13	4	15	180
12		12	160
<hr/>			
26		30	10800
134		15	180
<hr/>			
160		180	28800
<hr/>			
40	d.	s.	
28800	(120.	220	(10
24440		222	
22		x	

*6 Rule. Division in Fractions.*

Multiply the Numerator of the Dividend by the denominator of the divisor for a new Numerator ; and secondly the Denominator of the dividend by the Numerator of the divisor, for new denominator, and the division is ended : or otherwise place your dividend first above, and the divisor underneath, after my

my manner, and multiply crosse, and place then as in these examples.

If you wil divide  $6:12$  by  $2:3$ , which was the product of  $2:3$  by  $3:4$  in the last example, then it will bring out  $18:24$ , or  $3:4$ , the other number, which proves the work good.

1 Example.

18	10	360
$6:12$	$2:3$	$12:15$
$2:3$	$4:5$	$16:20$
24	12	240

If the Denominators of the fractions bee both alike, then divide their numerators one by another; as  $27:32$  divided by  $3:32$ , makes the quotient to be  $9:32$ .

Example.

9	3	3
$27:32$	$9:8$	$21:22$
$3:32$	$3:8$	$7:22$
32	8	12

If the Numerators be alike, then set the denominator of the Divisor above the Denominator of the dividend, as  $3:4$  by  $3:8$ , makes the quotient  $8:4$ , or two Integers, and contrariwise  $3:8$  by  $3:4$ , makes the quotient  $4:8$ , or  $1:2$ .

Example

Example.

8	4	24
3:4	3:8	7:26
3:8	3:4	7:24
4	8	16

The prooffe of Division by the parts  
of Coyne.

In the second of the first example, where I divide 2:3 by 4:5, the quotient is 10:12, which in coyne is 16 shillings 8 pence: for prooffe, I do multiply 2:3 of a pound, which is 163 pence, by 24, makes 38400; which divide by 4:5, or 192 pence, makes 200 pence, which is 16 shillings 8 pence, the prooffe.

Example.

s.	d.	s.		160
2:3	13	4	4:5	16
	12			12
				<hr/>
	160			6400
				<hr/>
				192
				320
				<hr/>
	d.	d.	s.	d.
38400	(200	88		
19222		200	(16	8
199		122		
1		1		

7 Rule.

7 Rule. How to worke whole numbers  
with Fractions.

If you would Adde, Subtract, Multiply, or divide whole numbers with fractions, set the whole numbers fraction wise, and put 1 after for denominator, and then worke as in the Rules before, as if they were all Fractions, and no whole numbers.

Example.

If you will adde  $33:1$  with  $13:4$ , multiply the Numerator 33 of your whole number, by the Denominator of your Fraction 4, makes  $132:4$ , which adde unto  $13:4$ , makes the totall  $145:4$ .

$132 \quad 33:1$	$896 \quad 128:1$
$Ad. 13 \quad 13:4$	$36 \quad 36:7$
$145 : 4$	$932 : 7$

2 Example.

If you will subtract  $13:4$  from  $33:1$ , reduce them, and subtract 13 from 132, rest  $119:4$

$132 \quad 33:1$	$896 \quad 128:1$
$Sub. 13 \quad 13:4$	$36 \quad 36:7$
$119 : 4$	$860 : 7$

3 Example.

Example.

If you will multiply  $33:1$  by  $13:4$ ; multiply the numerators, 33 by 13, makes 429; to the which subscribe the Denominator 4, makes 429:4

$$33:1$$

$$13:4$$

$$128:1$$

$$36:7$$

---


$$429:4$$

---


$$4608:7$$

4 Example.

If you will divide  $33:1$  by  $13:4$ , multiply crosse 33 by 4, makes 132, to bee set above; then 13 by 1 makes 13 for denominator.

$$132$$

$$33:1$$

$$13:4$$

$$13$$

$$108$$

$$27:1$$

$$32:4$$

$$32$$

$$896$$

$$128:1$$

$$36:7$$

$$36$$

8 Rule. How to worke whole numbers and Fractions with Fractions.

Reduce your whole numbers into Fractions in multiplying your whole number by the Denominator of your Fractions; and unto that product adde the Numerator of your fraction, and subscribe the old denominator.

1 Example.

If you will multiply  $28 \frac{3}{4}$  by  $3 \frac{5}{8}$  reduce

$$28$$

28  $3:4$  into fourths in multiplying by the Fractions Denominator 4, saying, 28 by 4 makes 112, to the which adde the Numerator of your Fraction 3, makes 115; which multiplied by 3:5, makes 345:20.

$$\begin{array}{r}
 28 \quad 3:4 \\
 \underline{4} \\
 115 : 4 \\
 \underline{3:5} \\
 345 : 20
 \end{array}$$

If you will divide 28  $3:4$  by 3:5; reduce them as before, and then multiply them crosse, makes 115:4 by 3:5, is 575:12.

*Example.*

$$\begin{array}{r}
 575 \\
 \times 3:4 \\
 \underline{3:5} \\
 12
 \end{array}$$

### 3 Rule. How to abbreviate a Fraction.

Take one halfe of the Numerator, and 1:2 of the Denominator, as oft as you may untill the lowest numbers in value of your fractions comes to be primes together, which are such numbers, as cannot bee abbreviated no lower.

*Example*



*Example.*

In the first example of fractions of fractions, the fraction was 72:504, which was abbreviated unto 1:7 of a pound: first, take halfe the Numerator 72, which is 36, then halfe the Denominator 504, which is 252; then 1:2 of 36, is 18; and 1:2 of 252 is 126. Againe, 1:2 of 18 is 9, and 1:2 of 126 is 63; then I see I cannot take 1:2 of the remainer, wherefore I see I may abbreviate them by 3 still, saying, the third part of 9 is 3, and 1:3 of 63 is 21: lastly, 1:3 of 3 is 1, and 1:3 of 21 is 7, which place thus, 1:7; so that I find by abbreviation that 72:504 of a pound, is one seventh part of a pound.

*Example.*

72:504    36:252    18:126    9:63    3:21    1:7

If you cannot take halfe the numbers, then marke whether they will abbreviate by 3, 4, or 5, or any other number under 9; as for example, I would abbreviate 92:144, I see I may abbreviate both by 4; then taking 92, divide by 4, makes 23, and 144 by 4 makes 36, totall 23:36, &c.

If you will abbreviate, 375:625 of a pound, you may easily see, they will be both abbreviated by 5: wherefore divide the Numerator and Denominator both by 5, as oft as you can

can, untill they become primes together, and you shall find the value of that fraction to be 3:5 of one pound, or 12 shillings.

*Example.*

$$\begin{array}{ccccccc}
 2 & & 1 & & 2 & & \\
 375 & (75 & 625 & (125 & 75 & (15 & 225 & (25 & 3:5 \\
 55 & & 555 & & 55 & & 55 & & 55
 \end{array}$$

10 Rule. How to find the value of any Fraction.

Multiply the Numerator of your fraction by the parts contained in the whole, and divide that Product by the old Denominator, and the Quotient will bee the value of that fraction in the knowne parts of Coyne.

*Example.*

If you would know what 24:32 parts of a pound is in Coyne: multiply your Numerator 24 by 24, the pence in one pound, makes 5760; which divided by 32, the denominator, makes 180 pence, or 15 shillings, the true value of that fraction.

*Example.*

# Fractions.

V21

## Example.

24			
240	29	d.	6
<hr/>	5760	(180	280 (15
960	3222		222
48	32		2
<hr/>			
5760			

What is 343:522 parts of a yard; multiply 343 by 16, the number of nayles in one yard makes 5448; which divide by 522, makes 10 nayles, and 268:522 parts of a nayle.

## Example.

343	26	Nayles.
16	5488	(10 268:522
<hr/>	5222	
5488	52	

## 11 Rule. How to change the Sirname of a Fraction.

Multiply the numerator of your Fraction by the parts, or new Sirname of that you would change your fraction into, and divide by your denominator, and the quotient will be your desire.

## 1 Example.

I have 324:1620 parts of a yeere, which I  
G would

would convert into dayes; I multiply 324 by 365, the number of dayes in one yeare, makes 118260; which divided by 1620, makes 73 dayes, the value of that fraction.

324

Example.

324

365

—————

1620

1944

972

—————

118260

480 Dayes.

118260 (73

16220

26

I would change 256:5292 parts of a pound into pence; multiply the Numerator 756 by 240 pence, makes 181440, which divide by the denominator 5292, and the quotient is 34 pence 1512:5292.

Example.

756

240

—————

151

22882

d.

30240 181440 (34, 1512:5292

1512 5292

—————

181440

12 Rule. Questions of Fractions.

What number is that to the which if you doe

doe adde 3:4, the Totall will bee 5:6 of a pound? Answer; reduce them to one Denomination, and they are for 3:4 of a pound 18:24, and the 5:6 are 20:24, from which subtract 18, rest 2:24 of a pound, or 20 pence : the prooffe, take 3:4 of a pound, which is 15 shillings, and adde 20 pence to it, and the Totall is 16 shillings, 8 pence; which is 5:6 of a pound.

Example,

N. D:		s.	d.
18	3:4	5	0
20	5:6	1	8
<hr/>		<hr/>	
2	24	16	4

2 Example,

What number is that, from which if you doe subtract 8:12, the remainder will bee 6:10? Answer, reduce them, and adde them both into one Totall, makes 152:120 of a pound for the number you doe seek.

The prooffe in coynes, 152:120 of a pound is 304 pence, and 8:12 of a pound is 160 pence, which taken from 304, leaves 144 pence remaining, which is 6:10 of a pound,

or 12 shillings, as appeareth by the worke.

$$\begin{array}{r}
 80 \quad 8: \quad 12 \quad 152 \quad 304 \quad 2 \quad s. \\
 72 \quad 6: \quad 10 \quad 2 \quad 160 \quad 244 \quad (12 \\
 \hline
 152 \quad 120 \quad 304 \quad 144 \quad 2.
 \end{array}$$

What number is that, which being multiplied by 3:5, the Product will bee 9:20. Answer divide 9:20 by 3:5, and the Quotient is 45:60, or 3:4. For the Proofs, multiply 108 pence, which is 9:10 of a pound, by 240, the product is 25920; which divide by 144, or 3:5, which is 12 shillings, makes 180 pence, or 3:4 of a pound.

3 Example.

$$\begin{array}{r}
 45 \quad 2250 \quad d. \quad 108 \\
 9:20 \quad 28920 \quad (180 \quad 240 \\
 3:5 \quad 24444 \quad 4320 \\
 60 \quad 244 \quad 216 \\
 \hline
 25920
 \end{array}$$

Example.

What number is that, which being divided by 7:8, the Quotient will bee 4:5. Answer, multiply 7:8 by 4:5, the Product is 28:40, or 7:10, which makes 14 shillings.

The proofs in Coyne, 7:8, which is 210 pence, by 4:5, which is 192 pence, and the Product

# Fractions.

125

Product is 40320; which divide by 240, makes 168 pence, or 14 shillings: behold the example following.

Example.

7:8 or 17:6	4:5 or 16:12	1:2
12	12	210
40	32	1920
17	16	384
210	192	40320

1680 (168) 108 (14)

# Rules of Practice.

*Rules of Practice by the first Table.*

**T**O worke by the Aliquot parts of a pound, search in the first Table for your given price, and by that number found, divide your number given, and the quotient is your answer in pounds, and the remainder is the fraction of one pound.

But if the given price be not found exactly at the first entrance, then find 2<sup>o</sup> or more numbers, to make the given price, and then worke as followeth.

*Example.*

If one yard cost 3 shillings 4 pence, what will 7859 yards cost at that rate: Enter the Table, and againe 3 shillings 4 pence, I find 1:6 of a pound; wherefore I divide 7859 by 6; makes 1309 pound, 5:6 of one pound, or 16 shillings 8 pence.

7859	l.	s.	d.
1309	5:6	or 16	8

The



## The first Table.

## The second Table.

The Aliquot parts of  
a pound.

Shillings.

s.d	par.	s.d	par.	s.	par.	s.	par.
1	240	1.4	15	1	$\frac{1}{2}$	11	$5\frac{1}{2}$
2	120	1.8	12	2	$\frac{1}{3}$	12	6.
3	80	2.0	10	3	$\frac{1}{4}$	13	$6\frac{1}{2}$
4	60	2.6	8	4	$\frac{1}{5}$	14	7.
5	48	3.4	6	5	$\frac{1}{6}$	15	$7\frac{1}{2}$
6	40	4.0	5	6	$\frac{1}{7}$	16	8.
8	30	5.0	4	7	$\frac{1}{8}$	17	$8\frac{1}{2}$
10	24	6.8	3	8	$\frac{1}{9}$	18	9.
12	20	10.0	2	9	$\frac{1}{10}$	19	$9\frac{1}{2}$
16	16	20 0	1	10	5.	20	10

Divisors.

Multipliers.

At 16 pence an ell, what will 8976 ells cost, I find for 16 pence my Divisor to be 15, and so dividing 8976 by 15, the quotient is 598 pound, 6:15, or 2:5, which is 8 shillings.

## Example.

$$\begin{array}{r} 2 \\ 142 \\ 8976 \end{array} \begin{array}{l} l. \\ 598 \end{array} \begin{array}{l} s. \\ 6:15, \text{ or } 2:5 \end{array} \begin{array}{l} s. \\ 8 \end{array}$$

$$\begin{array}{r} 1995 \\ 22 \end{array}$$

Adde a Cypher to your number given, and the last figure of your quotient will bee primes, every one in value 2 shillings, and the remainder is the Fraction of a Prime, alwayes lesse then 2 shillings. In the first example, the remainder was 5:6 of one pound, but if you adde a Cypher, the Quotient will be 1309 pound, 8 primes or 16 shillings, and the remainder is 2:6 of one prime, or 1:3, which is 8 pence.

$$\begin{array}{r} 2 \quad 22 \quad l. \quad s. \quad d. \\ 78990 \end{array} \begin{array}{l} (1309 \quad 8 \\ 00000 \end{array} \begin{array}{l} 1:3 \text{ or } 16 \quad 8 \end{array}$$

At 2 shillings 6 pence a pound pepper, what will 2436 pound cost: find 2 shillings, 6 pence 1:8 of a pound, wherefore adde a Cypher, and divide, by 8, makes 304 pound 10 shillings.

$$\begin{array}{r} 4 \\ 24360 \end{array} \begin{array}{l} l. \\ (304 \end{array} \begin{array}{l} s. \\ 5 \text{ or } 10 \end{array}$$

$$\begin{array}{r} 8888 \end{array}$$

At

At 8 pence a pound Ginger; what will 77856 pound cost; divide by 30, adding a Cypher, makes 2595 pound, 2 primes, or 4 shillings.

222		l.	1	s.
778560	(	2595	2	or 4
333330				

At 17 pence a pound Sugar; what shall 23459 pound cost: for 12 pence, divide by 20, makes 1172 pound, 9 primes, 12, or 19 shillings: then for the rest of your given price, which is 5 pence, take 48, and divide, and the quotient is 488 pound, 7 primes, which added together into one sum, makes the totall 1661 pound, 13 shillings, 7 pence.

Example.

222		l.	0
234590	(	1172	9
222220			

431			
42254		l.	7
234590	(	488	7
48888			7:24
444			

	l.	s.	d.
1172	19	0	
488	14	7	
<hr/>			
The Summe.	1661	13	7

At 6 shillings 8 pence a pound Cloves, what will 3769 pound weight cost: divide by 3, makes 1256 pound, 3 primes, 1:3, or 6 shillings 8 pence.

$$\begin{array}{r} \text{xxxi} \quad \text{lb} \quad \text{1000000} \quad \text{d.} \\ 37690 \quad (1256. \quad 3 \quad 1:3 \text{ for } 6 \quad 8 \\ 33333 \end{array}$$

At 22 pence an elle of Holland, what 3768 ells cost: for 20 pence divide by 12 makes 314 pound, and for 2 pence by 120, makes 31 pound, 4 primes, or 8 shillings; the totall is 345 pound, 8 shillings.

$$\begin{array}{r} \text{x8} \quad \text{L} \quad \text{xx4} \quad \text{L} \quad \text{1} \\ 37680 \quad (314 \quad 37680 \quad (31 \quad 4 \\ 2222 \quad \text{xx2220} \\ \text{xx} \quad \text{xx} \quad \text{cxxxxx} \end{array}$$

$$\begin{array}{r} 314 \quad 0 \\ 31 \quad 8 \\ \hline 345 \quad 8 \end{array}$$

If one ell of Holland cost 20 pence, how many ells shall I buy for 345 pound: multiply 345 by the price, which is 1:12, or by

12, makes 4140 ells, the summe desired.

345	56	l.
12	4240	(345 The prooffe,
690	222	
345	21	

4140

If one ell of Ozenbrigs cost 8 pence, what sum of elles will 78 pound buy me: multiply by 30, makes 2340 elles.

78	
30	
2340	elles.

78	22	elles.
15	2270	(78
390	288	
78	2	

1170

At 15 pence an elle of Canvas, how many elles will 100 pound buy: multiply by 16, makes 1600 elles.

If one elle of parchment lacs cost 1 penny, how many ells shall I have for 73 pound: multiply by 240, makes 17520 ells.

Example.

Example.

$$\begin{array}{r}
 240 \\
 73 \\
 \hline
 720 \\
 1680 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 7 \quad 1. \\
 27520 \quad (73 \\
 2440 \\
 2
 \end{array}$$

17520

If one Acre of land bee 5 shillings, how many Acres may I hire for 132 pound: multiply by 4, makes 528 Acres.

132

4

528 Acres.

*The Rule of Practice by the second Table.*

If the price given bee any number of shillings, search in the second Table for the price given, and by the number there found: multiply your number of yards, ells, pounds or pieces, and cut off the last figure with a dash of the penne for primes, every one in value 2 shillings, and the Product is the sum of pounds and shillings that your given number will cost.

Example.

At 2 shillings an elle of Holland, what will

will 956 elles cost: in the second Table I find the tenth of the number given, so that if you take the tenth of 956, it is 95 pound, 12 shillings, onely by cutting off the last figure by a dash of the penne.

946 elles at 2 s. an elle, makes 95 | 6, or 12 s.

At 7 shillings an ell of Cambricke, what will 789 elles cost: multiply by 3 1:2, or take halfe of the given number, and multiply the whole number given, by 3, makes in one sum, cutting off the prime line, 276 pound, 3 shillings.

*Example.*

789  
3 1:2

---

2367  
394 1:2

---

276 | 1:2

---

Also 1240 ells at 7 s. 434 |

3 1:2

---

3720  
620

---

434 | 0

---

As

At 25 shillings a piece Raysons, what will 356 pieces cost : take alwayes halfe the number of shillings of your given price for your multiplier, and worke as before, and the Product is 456 pound, 0 prime.

*Example.*

$$\begin{array}{r}
 356 \\
 12 \quad 1:2 \\
 \hline
 4272 \\
 178 \\
 \hline
 445 \mid 0
 \end{array}$$

Also 75032 pieces at 26 shillings a piece,

$$\begin{array}{r}
 75032 \\
 13 \\
 \hline
 225096 \\
 75032 \\
 \hline
 97548 \mid 6
 \end{array}$$

If one barrell of Sope cost 47 shillings, what will 3584 barrells cost : multiply by 23 1:2, makes 8422 pound, 8 shillings.

*Example.*



Example.

$$\begin{array}{r}
 3584 \\
 23 \quad 1:2 \\
 \hline
 10752 \\
 7168 \\
 \hline
 1792
 \end{array}$$

$$\begin{array}{r}
 8422 \overline{) 1}
 \end{array}$$

At 3 pound 6 shillings a Barrell, what will  
124 cost.

$$\begin{array}{r}
 124. \\
 33 \\
 \hline
 372 \\
 372 \\
 \hline
 409 \overline{) 2}
 \end{array}$$

If one Acre of land cost 6 pound 8 shil-  
lings, what will 738 Acres cost: multiply  
by 64 shillings, which is half the price, the  
Product

Product is 485 1 pound, 4 shillings, or two primes.

$$\begin{array}{r} 758 \\ 64 \end{array}$$


---


$$\begin{array}{r} 3032 \\ 4548 \end{array}$$


---


$$\begin{array}{r} 4851\frac{1}{2} \end{array}$$


---

How to prove the last question; or any other of like kind. If one Acre of land cost 6 pound 8 shillings, how many Acres shall be bought for 485 1 pound, 4 shillings: divide your number of pounds and shillings by one halfe of the number of shillings in the price given, adding a Cypher to your number of pounds, and the Quotient is the number of Acres of land the said summe will buy at that rate.

*Example.*

The given sum is 485 1 pound, 2 primes, or 4 shillings; which divided by halfe the given price, which is 64 shillings, brings into the Quotient 758 Acres, and so of any other summe.

5  
37 Acres.  
48512 (758  
6444  
60

A Merchant bought Cambricks cost him 855 pound, 18 shillings; the question is, how many pieces hee had, paying for every piece 27 shillings? Answer, adde a Cypher to your number given, which is 855 pound, 9 primes, makes 85590; which divide by halfe the price given, which is 13 1:2; or divide by 135 the Quotient will bee 634 pieces: now the reason wherefore a Cypher is added to the number given, having 9 primes in it is, because I divide by 13 1:2 which hath one fraction; and this rule is generall.

*Example.*

What cost 634 pieces at 27 shillings.

	634
	13 1:2
454 Pieces.	
85590 (634	1902
23555	634
235	317
2	

*The prooffe.*      855 | 9

*How*

*How to prove one question in the Rules of Practice by the working of another.*

If you will prove any Question in the Rules of Practice, by a second example, mark the complement, or want of your given price from one pound, and worke the same number at that price which doth want, and the totall of those two sums added together, makes the just number of pounds of the given summe.

*Example.*

At 16 shillings a piece of Fastian, what will 320 pieces cost. Answer, multiply by 8 makes 256 pound, 0 prime.

Againe, 16 shillings your given price wanted 4 shillings of one pound, wherefore worke 320 at 4 shillings, which is multiplied by 2 primes, makes 64 pound, 0 prime, the totall is 320 pound which proves the former worke.

320 8	320 2	256 64
2560	640	320 pound.

*Example.*

At 13 shillings a piece of Lawne, what will 753 pieces cost: 752 by 6 1:2, makes 488 pound, 8 primes.

# Rules of Practice.

139

At 7 shillings a piece, what 752 pieces;  
752 by 3 1:2, makes 263 pound, 2 primes,  
total is 752 pound.

Example.

752		752
6	1:2	3
376		2256
4888		376
2632		4888

752	1:2	2632
4888		752
2632		4888
752		2632
4888		752
2632		4888

Rules

# Rules of Practice by the Third Table, the most excellent of all the other.

The third  
Table.

The third  
Table.

<i>The Aliquot parts of 24:</i>				<i>The parts of a Shillings.</i>			
<i>d.</i>	<i>par.</i>	<i>d.</i>	<i>part.</i>	<i>d.</i>	<i>par.</i>	<i>d.</i>	<i>part.</i>
1	24.	13	2. 24	4	8	7	2. 12
2	12.	14	3. 4	1	24	8	1. 12
3	8.	15	2. 8	2	18	9	2. 4
4	6.	16	3. 3	3	16	10	3. 3
5	12.8	17	3.4. 8	4	—	11	2.3. 6
6	4.	18	2. 4	d.	—	12	<i>Idem.</i>
7	8.6	19	2.8. 6	1	1		
8	3.	20	2. 3	2	2		
9	4.8	21	2.4. 8	3	3		
10	4.6	22	2.4. 6	4	4		
12	3.8	23	2.3. 8	6	6		
11	2.	24	1. 12				

*Divisors.*

Divide

Divide the number of ells, yards, pounds, or pieces given by the number, or numbers found in the third Table, alwayes cutting the last figure for primes, if that any remaine after Division, it is alwayes lesse then 1 prime, or 2 shillings.

*Example.*

At 3 pence a pound Licoras, what will 123728 pound cost? Answer, for 3 pence in the third Table, I find my Divisor to bee 8, by which I divide my given number, makes 1546 pound, 6 primes, or 12 shillings.

$$\begin{array}{r} 4 \ 84 \qquad \qquad \qquad \text{li. } | \qquad \text{s.} \\ 223728 \quad (1546 | 6 \text{ or } 12 \\ 88888 \end{array}$$

At 9 pence the pound Ginger, what will 8768 pound cost: for 6 pence divided by 4 makes 219 li. 2 primes, then for 3 pence the residue of the price divide by 8, makes 109 pound, 6 primes, totall is 328 pound, 8 shillings. Or otherwise divide by 4 for 6 d. and then take half that product for 3 pence, and adde them into one summe, as before.

*Example.*

$$\begin{array}{r} 3 \qquad \qquad \text{li. } | \qquad \text{s.} \qquad \text{d.} \qquad \text{ff} \\ 8768 \quad (219 \ 2 \qquad 8768 \quad (109 \ 6 \\ 4444 \qquad \qquad \qquad 8888 \quad 219 \ 2 \\ \hline \qquad \qquad \qquad \qquad \qquad \qquad 328 \ 8 \\ \qquad \qquad \qquad \qquad \qquad \qquad \text{At} \end{array}$$

At 11 pence the yard Canvas, what will 2356 cost: for 8 pence divide by 3, makes 78 pound, 5 primes, 1:3 or 8 pence; and for 3 pence divide by 8, makes 29 pound, 4 primes, 1:2, or 12 pence; the totall is 107 pound, 19 shillings, 8 pence.

221 l.   d.	734 l.
2356 (78 5 8	2356 (29 4 1:2
333	888

l.	s.	d.
29	9	0
78	10	8

107 19 8

*A second Example the prooffe of the last.*

At 13 pence a pound fine Sugar, what will 2356 pound cost: for 12 pence divide by 2, makes 117 pound, 8 primes, or 16 shillings; then for 1 penny, divide by 24, makes 9 pound, 8 primes, 4 pence, the totall is 127 pound, 12 shillings, 4 pence; which added to the former sum in the last example, makes 235 pound, 12 shillings; and so much will 2356 pound cost at 2 shillings a pound, because the two given prices make one prime, or 2 shillings.



Example.

will  
akes  
for

# Example.

5 4  
107

21	l.	.	d.	29	l.	d.		
2356 (117 8				2356 (9 8 4				
2222 9 8 4				244				
<hr/>				2				
127 6 4								
<hr/>								
127	12	4						
107	19	8						
<hr/>								
235	12	0						

At 16 pence a pound Sugar, what will 78432 pound cost; worke for 8 pence, and double the sum, makes 5228 pound, 8 primes or 16 shillings.

At 8 pence a pound Almonds, what will 78432 ponnd cost; divide by 3, makes 2614 pound, 4 primes, or 8 shillings; which added with the former Example, makes 7843 pound, 2 primes, which is the price that 78432 pound will cost at 2 shillings a pound and proves both examples true.

Ex-

Ex-

Example.

x	xx	l.	1
78432	(2614	4	
33333	2614	4	
<hr style="border: 1px solid black;"/>			
	5228	8	

x	xx	l.	1
78432	(2614	4	
33333	5228	8	
<hr style="border: 1px solid black;"/>			

7843 2

At 18 pence a pound Comfits, what will 78432 pound cost: for 12 pence take halfe the given number; and for 6 pence take halfe of that summe, which added into one totall makes 5882 pound, 4 primes.

78432
<hr style="border: 1px solid black;"/>
39216
19608
<hr style="border: 1px solid black;"/>
5882 1/4

Primes.

The totall is 5882 l. 8 s. 0 pence.

At 6 pence a pound small Ginger, what wil 78532 li. cost: divide by 4, makes 1960 li. 8

li. 8 primes, or 15 shillings; which added to 5882 pound, 8 shillings, makes 7843 pound, 2 primes, the price at 2 shillings.

3 2	l. 1	5 8 8 2	4
7 8 4 3 2	(1960 8	1960	8
4444			
	Prooffe	7 8 4 3	2

These Tables may serve also, if the price bee above 2 shillings, or one prime: as if you shall say at 3 shillings 6 pence an elle, what 782 elles: here I see the given price is compounded of 3 times 6 pence; wherefore I worke first for 6 pence, in dividing by 4 makes 16 pound, 11 shillings, which multiply by 7, makes 136 pound: 17 shillings for the price of 782 elles, at 3 shillings, 6 pence the elle.

At 6 pence an elle, what 782 elles: find for 6 pence, 19 pound 11 shillings, which added to the former summe in the last example, makes 156 pound, 8 shillings, which is the summe that 782 elles will cost at 4 shillings the elle.

Example.

$\begin{array}{r} 32 \\ 782 \\ 444 \end{array}$ 
 $\begin{array}{l} l. \\ (19\ 5 \\ \end{array}$ 
 $\begin{array}{l} || \\ 1:2 \\ \end{array}$ 
 $\begin{array}{l} s. \\ or\ 11 \end{array}$

$\begin{array}{r} l. \\ 19 \\ 7 \\ \hline 136 \end{array}$ 
 $\begin{array}{r} s. \\ 11 \\ 7 \\ \hline 17 \end{array}$ 
 $\begin{array}{r} 7\ 8\ 2 \\ 2 \\ \hline 156\ 4 \end{array}$ 
*The Proofs.*

At 4 shillings 8 pence the elle Holland, what will 2148 elles cost. I find 4 shillings 8 pence to be 14 Groats, so dividing by 6 for one Groat, makes 35 pound, 8 primes: which multiply by 14, makes 501 pound, 4 shillings.

$\begin{array}{r} 358 \\ 14 \\ \hline 1432 \\ 358 \\ \hline \end{array}$ 
 $\begin{array}{r} 34 \\ 2248 \\ 666 \end{array}$ 
 $\begin{array}{l} l. \\ (35\ 8 \\ \end{array}$

*The Totall.* 501|2 Primes.

At 15 pence a groce of poynts, what will 2256 grosse cost. 15 Pence is 5 times 3 d. and so I divide 2256 by 8, makes 28 pound, 2 primes; which multiply by 5, makes 141 pound.

$$\begin{array}{r}
 6x \quad l. \quad || \quad 282 \\
 2296 \quad (28 \quad 2 \quad 5 \\
 888 \\
 \hline
 14110
 \end{array}$$

Rules of Practice by the fourth Table.

If the number of the price given bee any Aliquot part, of a shilling: enter the fourth Table, and there you shall find a Divisor, by the which if you divide your number given, the Quotient will bee shillings. and the remainder parts of one shilling. Then to convert your shillings into pounds, take one half of the Quotient, cutting off the lower number for shillings, and the rest is pounds.

Example.

At 3 farthings a pound Prunes, what will 756 pound weight cost. Search in the fourth Table, and you shall find 16 for your divisor: by the which if you divide 756, the Quotient is 47 shillings, 1:4, or 3 pence.

$$\begin{array}{r}
 \text{will } 24 \quad s. \quad 2 \quad 4 \quad s. \\
 3 \text{ d. } 56 \quad (47 \text{ 1:4} \quad 807692 \quad (56103 \text{ 1:4} \\
 \text{and, } 66 \quad 200600 \\
 141x \quad 2222 \quad 2805 \text{ 1/3 } 3 \text{ d.}
 \end{array}$$

At 1 half penny a pound Corporas, what will 8756 pound cost. Divide by 24 makes 364 shillings, of which the one halfe cutting off the 4 shillings, is 18 pound 4 shillings, and 20 halfe pence remaining, Totall is 18 pound, 4 shillings, 10 pence.

$$\begin{array}{r}
 22 \\
 \text{xx} \\
 8756 \text{ (} 364 \\
 2444 \quad 18/4 \\
 \hline
 22
 \end{array}
 \quad
 \begin{array}{r}
 s. \quad l. \quad s. \quad d. \\
 18 \quad 4 \quad 10
 \end{array}$$

At 4 pence a pound Licoras, what will 789 pound cost. Divide by 3, makes 1 pound, 3 shillings.

Againe, at 6 pence a pound, what will 8579 pound cost. Divide by 2 makes 21 pounds, 9 shillings, 6 pence.

1 Example.

$$\begin{array}{r}
 x \quad s. \\
 789 \text{ (} 263 \\
 333 \text{ ---} \\
 \hline
 13l. 3s.
 \end{array}$$

2 Example

$$\begin{array}{r}
 x \quad s. \\
 8979 \text{ (} 4289 \quad 1:2 \text{ or} \\
 2822 \text{ ---} \\
 \hline
 214l. 9s. 6d.
 \end{array}$$

*Generall Rules of Practice without Table*  
 Multiply your number given by the  
 of pence, that one yard, piece, pound, or  
 doth cost, and the product will be the

of pence, the whole number given will cost; and then divide that summe of pence by 4, makes the Quotient Groats, and if any remaine they are pence, alwayes lesse then 4 pence, or one Groat: and secondly, again, divide the Quotient will bee pounds and primes, every prime in value 2 shillings, and the remainder is Groats, alwayes lesse then 6 groats, or 1 prime, which is value 2 shillings.

At 17 pence an elle Canvas, what will 3245 elles cost: Multiply by 17, makes 55165 pence, which divided by 4, makes 13791 Groats, and there will remaine one penny. Secondly, divide that quotient again by 6, makes 229 pound, 8 primes, and the remainder is 3 groats, or 1 shilling; and so the totall is 229 pound, 17 shillings, 1 penny.

Example.

3 2 4 5	d.
1 7	
2 2 7 1 5	x 3 3 1 Groats.
3 2 4 5	5 5 1 6 5 (1 3 7 9 1
	4 4 4 4 4

5 5 1 6 5				
Groats.				
x 5 5 3	l. 1	s.	d.	
2 2 7 9 2	(2 2 9 8	or 17	1	
6 6 6 6				

At

At 3 shillings, 7 pence a yard Hollands  
what will 752 elles cost: multiply 752 by  
43 pence, the price of one ell, makes 32336;  
which divided, as is before taught, makes  
134 pound, 14 shillings, 8 pence.

*Example.*

$$\begin{array}{r}
 752 \\
 43 \\
 \hline
 2256 \\
 3008 \\
 \hline
 32336
 \end{array}$$

$$\begin{array}{r}
 2 \text{ Groats.} \\
 32336 \text{ (8084} \\
 4444
 \end{array}$$

$$\begin{array}{r}
 \text{Groats.} \\
 2242 \quad \text{l.} \quad | \quad \text{d.} \\
 8084 \quad (134 \quad 7 \quad 8 \\
 8666
 \end{array}$$

At 7 shillings, 11 pence the elle Cam-  
bricks, what will 856 ells cost. Reduce 7  
shillings, 11 pence into pence, makes 95  
pence; by which multiply 856, makes  
81320: which divided as before, makes 338  
pound, 16 shillings, 8 pence.



*Example.*

856	
95	Pence.
4280	2
7704	81320 (20330
81320	4444

Groats.			
2552	l.		d.
20330	(338	8	8
6666			

At 2 shillings, 11 pence an elle of Holland,  
 what will 7856 elles cost: multiply, and  
 divide as is before taught, makes 114<sup>3</sup>/<sub>8</sub> li.  
 13 shillings, 4 pence.

Example.

$$\begin{array}{r}
 7856 \\
 35 \\
 \hline
 39280 \\
 2356:8 \\
 \hline
 274960
 \end{array}$$

Pence.  
328  
274960 (68740  
44444

Groats.

$$\begin{array}{r}
 2344 \quad l. \quad i \\
 68740 (1145 \quad 6 \\
 66666
 \end{array}$$

At 17 shillings, 7 pence a yard Broad  
Cloath, what will 7856 yards cost: multi-  
ply by 211, the price of one yard, and divide  
as before, makes 6906 pound, 7 primes.

Example.

$$\begin{array}{r}
 7856 \\
 211 \\
 \hline
 7856 \\
 7856 \\
 15712 \\
 \hline
 1657616
 \end{array}$$

xx Groats.  
xx 1657616 (414404  
444444

Groats.

$$\begin{array}{r}
 542 \quad l. \quad 1 \quad d. \\
 424494 (6906 \quad 7 \quad 8 \\
 66666
 \end{array}$$

If

If your given price have any farthings in it, then reduce your price into farthings, and multiply your given number by those farthings, and the product will be the number of farthings, which your summe will cost; then divide that product by 16, makes the quotient groats, and the remainder wil be farthings, alwayes lesse then 16, or one Groat. Secondly, divide that quotient of Groats by 6, makes pounds and primes, as before.

*Example.*

At 5 shillings, 1 penny, 1 halfe-penny an ounce Plate, what will 356 ounces cost. Reduce 5 shillings, 1 penny, half-penny into farthings, makes 246 farthings: by which multiply 356, makes 87576 farthings; which divided by 16, makes 5473 Groats, and 8 farthings will remaine; which divide againe by 6, makes 91 pound, 2 primes, and 1 Groat will remaine, Totall is 91 pound, 4 shillings, 6 pence.

At 6 shillings, 9 pence, farthing an ounce of gilt Plate, what will 3542 ounces cost: multiply your shillings by 48, the farthings which are in one shilling, makes 288; to the which adde 37 farthings, which are in 9 pence, farthing, makes 325 farthings, and then worke as before is taught, and you shall find 1199 pound, 2 shillings 3 pence, halfe-penny.

H 5

Ex

Example.

3542	Farthings.
325	2 21
<hr/>	35724
17710	2252150 (71946
7084	26666
10626	2222
<hr/>	
1151150	
2554	1. 1
71946	(1199 1.
66666	

*Another way to worke Practice.*

Divide your number of yards, elles, or pieces by 240, adding a Cypher to your number given, and then multiply the Quotient by your price, and the Product is the sum of pounds, and shillings, that the given number will cost.

At 17 pence the elle Canvas, what will 7848 elles cost: adde a Cypher, and divide 78480 by 240, and the Quotient will bee 32 pound, 7 primes; which multiply by 17 pence, the price, makes 555 pound, 9 primes, or 18 shillings.

Example.

$$\begin{array}{r}
 2 \\
 66 \\
 78480 \quad (32 \overline{)7} \\
 24440 \\
 \hline
 22
 \end{array}
 \qquad
 \begin{array}{r}
 327 \\
 1.7 \\
 \hline
 2289 \\
 327 \\
 \hline
 \end{array}$$

555|9

At 3 shillings, 5 pence an elle of Holland, what will 702 elles cost: divide 7020 by 240, makes 2 pound, 9 primes, and there will remaine 6; which multiply by 41 pence, the price of one elle, makes 118 pound, 9 primes, or 18 shillings, and then the 6 elles, makes 1 pound, 6 pence, the total is 119 pound, 18 shillings, 6 pence.

Example.

$$\begin{array}{r}
 226 \\
 7020 \quad (2 \overline{)9} \\
 2440 \\
 \hline
 2
 \end{array}
 \qquad
 \begin{array}{r}
 2 \overline{)9} \\
 41 \\
 \hline
 29 \\
 116 \\
 \hline
 \end{array}$$

118|9

s.	d.	l.	s.	d.
3	5	118	18	0
	6	1	00	6
<hr/>		<hr/>		
20	6	119	18	6

Ans.

At 19 pence the elle of Holland, what will 32544 elles cost: divide 32544<sup>o</sup> by 240, makes 1356: which multiply by 19 pence, the price of one elle, makes 2576 pound, 8 shillings.

$$\begin{array}{r}
 \text{xx} \\
 83 \\
 325440 \text{ (1356} \\
 244440 \\
 222
 \end{array}$$

$$\begin{array}{r}
 135 \overline{)6} \\
 1:9 \\
 \hline
 12 \overline{)204} \\
 1356 \\
 \hline
 2576 \overline{)1}
 \end{array}$$

# The Golden Rule.

---

*Of single proportion Direct, or*  
 The Rule of three, called the  
 Golden Rule.

**I**N this Rule of 3 Direct, there is always three termes given, and a fourth required, and it is called the Golden Rule, in regard of the excellency of this Rule above all others. The difficulty of this Rule consisteth in the right placing of the 3 numbers given, set the terme next your right hand, whereupon the question is moved, and a terme of the same nature towards the left hand, and the third terme in the middle. Then multiply the second number by the third, and divide the Product by the first, and the Quotient is the fourth proportionall number sought, or desired to be found out; whose denomination is ever like unto the middle number.

158,

*The Golden Rule.**1 Example.*

If 90 yards of Cloath cost 23 pound, what  
cost 346 yards.

	346	
	23	
23                      l.		
7658 (88 38:90 of a li.		1038
990		692
		7958

If 124 pound gaine 37 pound, 12 shil-  
lings, what will 758 pound againe.

	37    1:2	758
	20	752
752		116
		140
		240
I		355
2281		356
74052                      l.		495
570026 (4596 112:124		
224444		570016
2222		
22		

*How*



How to worke this last example, and all other, after a more briefe and exact manner.

Divide the third number by the first, and by the quotient multiply the second, and the product is the answer.

Example.

If 356 elles cost 137 pound, 12 shillings, 9 pence, what cost 2848 elles.

$$\begin{array}{r}
 \begin{array}{r}
 0 \\
 2848
 \end{array}
 \begin{array}{l}
 (8 \\
 356
 \end{array}
 \begin{array}{r}
 137 \quad 12 \quad 9 \\
 8 \\
 \hline
 1096 \quad 96 \quad 72 \quad (6 \\
 5 \quad 6 \quad 22 \\
 \hline
 1101 \quad 2
 \end{array}
 \end{array}$$

Totall is 1101 li. 2 s. 0 d.

First, divide 2848 by 356, the quotient is 8: by which I multiply 137 pound, 12 shillings, 9 pence, the Products are 1096 pound, 96 shillings, 72 pence; then divide 72 by 12, is 6 shillings; which added to 96 shillings, makes 102 shillings, or 5 pound, 2 shillings; the Totall is 1101 pound, 2 shillings, as before.

Example

## 2 Example.

If 124 yards cost 17 pound, 10 shillings, 1 penny, what cost 744 yards.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
	17	10	1
	6		
744 (6	<hr/>		
224	102	60	6
	3		
	<hr/>		
	105	0	6

If 32 pieces of Raysons cost 19 pound, 2 shillings, 2 pence, what will 112 pieces cost at that rate.

## 3 Example.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
	19	2	7
	$3\frac{1}{2}$		
16	<hr/>		
222 ( $3\frac{16}{33}$ or $\frac{1}{3}$	57	9	1:2
32	9	10	
	<hr/>		
	66	19	1:2

If 356 pieces cost 137 pound, 12 shillings, 9 pence

# The Golden Rule.

161

9 pence ; what will 2848 pieces cost at that rate.

$$\begin{array}{r}
 137 \text{ } 12. \text{ } 9 \\
 \underline{20} \\
 2752 \\
 \underline{12} \\
 33032.
 \end{array}
 \qquad
 \begin{array}{r}
 33033 \\
 2848 \\
 \hline
 20224 \\
 24404 \\
 10112 \\
 12202 \\
 20224 \\
 24404 \\
 66066
 \end{array}$$

94077984

Example.

$$\begin{array}{r}
 28 \\
 25924 \\
 22813720 \\
 \hline
 356 \mid 94077984 \text{ } (264264 \\
 \quad \quad \quad 00000000 \\
 \hline
 71264264 \\
 2132132 \\
 14714 \\
 21 \\
 \hline
 94077984
 \end{array}$$

Example.

## Example.

20 2	l.	1
2042040	( 1101	1
2444440		
2222		

*How to know whether any question given bee to be answered by the Rule Direct, or Conversed.*

By these notes following, you shall find, whether any question propounded be to bee answered by the Rule of 3 Direct, or conversed; for alwayes the third number is the number whereon the question dependeth, and is distinguished from the other two, by someone of these notes following.

*How much. How wide.*

*How deepe. How long. or such like.*

*How farre. What cost.*

And the answer is alwayes, more or lesse, so that if it bee more, then the lesser of your 2 extreame numbers is the divisor: if lesse, then the greater of your 2 extreames is your divisor. If the number wheron the question be depending, bee your Divisor, then the answer is, by the converse Rule, and you must multiply your 2 former numbers for Dividend. If the first number bee the Divisor, then

then the question is answerable by the direct Rule, and the product of the 2 latter numbers is your Dividend.

*Example.*

If 13 Cannons spend 358 pound of powder, what will 5 Cannons spend, now here the question is, what 5 Cannons will spend. I answer, lesse then 13 Cannons; wherefore by this rule, the greater of the 2 extreames, 13 is the divisor: wherefore I multiply 358 by 5, and divide by 13, makes 137 pound, 6:13 that 5 Cannons will spend.

1. *Example.*

If 13 Cannons spend 358 powder, what will 5 Cannons spend.

358	x	
5	400	1.
1790	1790	( 137 9:13
	x333	
	xx	

2. *Example.*

I lent my friend 115 pound for 7 moneths, and when I came to him to require the like kindnesse he could lend me but 54 pound, the question is, how long hee should forbear that 54 pound to make requitall, or to equall my time, and kindnesse.

If

If 115 pound require 7 moneths; what will 54 pound require: here the answer in reason is, that 54 pound must be longer time forborne then 115 pound, and so the answer is more times then 115 pound; so that I find the lesser of my extreames 54, is my divisor, and the question answerable by the rule conversed, so that I multiply 115 by 7, makes 805; which divided by 54, makes 14 moneths, 49:54 of a moneth, or 14 moneths, 25 dayes, 23:25

*Example.*

115	4	
7	269	<i>Moneths.</i>
805	805	(14 49:54
	544	
	5	
49		
28	2	
392	292	<i>Dayes.</i>
98	372	(25 22:25
1372	544	
	5	

*4 Example.*

A Captaine of a Band of men is besieged in a City having with him 7200 men, and his

his victuals will serve the whole Company but 7 moneths, and there is no hope left to have any fresh victuals untill 16 moneths; the question is, how many men hee shall send away to make the victuals serve for 16 moneths. Answer lesse then 7200 men.

If 7 moneths require 7200 men, how many will 16 moneths aske.

7200		
7	28	Men.
50400	50400	(3150
	26666	
	222	

When Wheate was sold at 3 shillings, 8 pence the bushell, the penny loafe of bread weighed 6 ounces, what shall the same loafe of bread weigh, when Wheat is sold for 2 shillings the bushell: I answer more then 11 ounces.

If 44 pence give 6 ounces, what will 24 pence give.

44		
6	2	Ounces.
264	264	(11
	244	
	2	

If 356 men digge a trench in 24 dayes, in how many dayes will 200 men make the same? Answer, in more dayes; 42 dayes, 17 houres, 7:25.

If 356 men require 24 dayes, how many will 200 men require.

$$\begin{array}{r}
 356 \\
 24 \\
 \hline
 1424 \\
 712 \\
 \hline
 8544
 \end{array}
 \quad
 \begin{array}{r}
 1 \\
 8544 \\
 2200
 \end{array}
 \quad
 \begin{array}{l}
 \text{Dayes.} \\
 (42 \text{ } 144:200
 \end{array}$$

$$\begin{array}{r}
 144 \\
 24 \\
 \hline
 576 \\
 288 \\
 \hline
 3456
 \end{array}
 \quad
 \begin{array}{r}
 2 \\
 3456 \\
 2200
 \end{array}
 \quad
 \begin{array}{l}
 \text{Howres.} \\
 (17 \text{ } 7:25
 \end{array}$$

Or thus; Considering the numbers, 200 may bee had in 356 once, therefore for 200 take 24 dayes; then for 156 take 18 dayes, totall 42 dayes; then there will remaine 6 to bee multiplied by 24, makes 144:200 parts of a day, as before.

If 112 pound cost 3 pound, 5 shillings, 5 pence, what will 3136 pound cost; divide 3136 by 112, makes 28; which multiply by 3 pound



# The Golden Rule.

167

3 pound, 5 shillings; 5 pence, makes 91 pound, 11 shillings, 8 pence.

	<i>l.</i>	<i>s.</i>	<i>d.</i>
	28	28	28
	3	5	5
89			28
3x36 (28	<hr/>		
xx22	84	11	22
xx	7	140	x
	<hr/>		
	91	11	8

If 100 pound gaine 7 pound, what summe of money will gaine 85 at that rate? Answer.

If 7 pound require 100 pound, what will 85 pound, require.

xx32	<i>l.</i>	85
8800 (1214 2:7		100
7777		<hr/>
		8500

Or otherwise, divide 85 by 7, makes 12 1:7; by which multiply 100, makes 12 14 pound 2:7 of a pound.

xx	100
88 (12 1:7	12 1:7
77	<hr/>
	1214 2:7
	Or

Or otherwise, divide 100 by 7, makes 14 1:7; by which multiply 85, makes 1214 pound, 2:7

Example.

$$\begin{array}{r} 32 \\ 100 \text{ (14 2:7} \\ 77 \end{array}$$

$$\begin{array}{r} 85 \\ 14 \text{ 2:7} \end{array}$$

$$\begin{array}{r} 340 \\ 85 \\ 24 \text{ 1:7} \end{array}$$

$$1214 \text{ 1:7}$$

Carseys at 54 shillings the piece, are put in Barter, at 3 pound the piece, how shall Wooll worth 24 shillings the Tod, bee set in Barter, to make the bargaine equall?

If 54 shillings be 60 shillings, what shall 24 shillings make?

Answer, for more then 24 shillings, and lesse then 54, so that 54 is the Divisor, and multiplying 24 by 60, makes 1440; which divided by 54, makes 26 shillings, 2:3, or 8 pence.

If 54 shillings be 60 shillings, what will 24 shillings make.

$$\begin{array}{r} 3 \\ 366 \\ 2440 \text{ (26 36:54, or 2:3, or 8} \\ 244 \\ 5 \end{array}$$

$$\begin{array}{r} 24 \\ d. \quad 60 \\ 1440 \end{array}$$

al  
in  
ne

If 6 sheepe cost 58 shillings, how many shall I buy for 124 pound? multiply 124 by 58, makes 7192; which divide by 6, makes 1198 sheepe 2:3.

$$\begin{array}{r}
 124 \\
 58 \\
 \hline
 992 \\
 620 \\
 \hline
 7192
 \end{array}
 \quad
 \begin{array}{r}
 2584 \\
 7192 \text{ (1198 2:3)} \\
 6626
 \end{array}$$

Or otherwise, divide 58 by 6, makes 9 2:3, by which multiply 124, makes 1198 2:3, as before.

*Example.*

$$\begin{array}{r}
 124 \\
 9 \text{ 2:3} \\
 \hline
 1116 \\
 82 \text{ 2:3} \\
 \hline
 1198 \text{ 2:3}
 \end{array}
 \quad
 \begin{array}{r}
 4 \\
 58 \text{ (9 2:3)} \\
 6
 \end{array}$$

A Merchant at Sivill delivereth 1500 Rials, to receive for every 11, being a Ducat in London 5 shillings, 10 pence sterling money, how much must he receive?

I

If

If 11 Rials be 70 pence, what are 1500 Rials?

		Pence.
		x 1
474		2387
x 500	(136 4:11	98490 (39 7
xxxx	70	24440
		22
952		
25		

l. s. d.  
9545 Total is 39 15 5

At 15 pound in the 100 pound profit, of what Rocke came 3274 pound? Answer: divide 3274 pound by 113 pound, makes 2897 pound, 39:113 of a pound, adde two cyphers to the given number.

x 83	
x 01039	l.
327400	(2897 39:113 of a pound.
xx3333	
xxxx	
xx	

A Merchant received for principall and gaine 328 wherein he found he had gained cleare 56 pound, what did he gaine upon the 100 pound? Answer, multiply 100 by 56, the gaine makes 5600; which divide by 328, and the Quotient is 17 pound, 341 in smallest termes.

$$\begin{array}{r}
 100 \\
 56 \quad 2324 \quad l. \\
 \hline
 5600 \quad 3288 \\
 32
 \end{array}$$

(17.24:328, or 3:41 of a li.

If 112 pound cost 7 pound, 6 shillings, how may I sell to gaine 10 pound upon the 100 pound? Answer: Take the tenth part of 7 pound, 6 shillings, or of 146 shillings, which is 14 shillings, 3:5 of a shilling; which added to the price, makes 8 pound, 7 pence, 1:5 of a penny.

$$\begin{array}{r}
 l. \quad s. \quad \quad \quad l. \quad s. \\
 7 \quad 6 \quad \quad \quad 7 \quad 6 \\
 20 \quad 246 \quad (14 \quad 3:5 \quad 14 \quad 3:5 \\
 \hline
 220
 \end{array}$$

$$\begin{array}{r}
 146 \quad \quad \quad 8 \quad 00 \quad 7d. \frac{1}{2}
 \end{array}$$

If 100 pound exchange be 7 pound 2 shillings, what is one pound? Answer, 71:100 parts of a pound: wherefore multiply 71 by 240, and divide by 100, makes 17 pence, 12:5 of a penny.

$$\begin{array}{r}
 71 \\
 240 \\
 \hline
 2840 \\
 142
 \end{array}$$

(17 40:100

$$\begin{array}{r}
 17040
 \end{array}$$

12

71:100

12



[How to find whether that your numbers given be proportionall, or not.

Divide your third number by the first, and if the Quotient bee an even number, and nothing remaine of your dividend, then the first and third numbers are proportionall in whole numbers, as in the last example, the first number was 107, and the third number 321, so that in dividing the third number by the first, the quotient is 3 & 0 remains: wherefore I conclude, that the first and third numbers are proportionals in whole numbers, and that the third doth containe the first just 3 times, and so often must the fourth number sought for, containe the second; & I conclude, that 3 times 17 pound 12 shillings, which is 52 pound 16 shillings, is the fourth proportionall number sought, as appeareth by the ordinary forme of worke in the last example.

321 (3  
107

l.	s.
17	12
3	3
<hr/>	
52	16

I 3

If

If 36 ells of cloth cost 13 pound, 4 shillings, 1 penny, what will 432 ells cost at that rate: divide 432 by 36, makes 12; by which multiply your second number 13 pound, 4 shillings, 1 penny, makes 158 pound, 9 shillings.

7	13	4	1
432 (12	12	12	12
306	<hr/>		
3	28	9	0
	13		
	<hr/>		
	158	9	0

*A.* doth lend unto *B.* 600 pound for 8 moneths, the question is, how much *B.* shall lend unto *A.* for 12 moneths to recompence him, not reckoning compound, interest? Answer. If 8 moneths require 600 pound, what will 12 moneths require: the reason is lesse then 600 pound, wherefore divide 600 pound by 12, makes 50; which multiply by 8, makes 400 pound.

Or otherwise by proportion, as 8 is to 12, so must 600 be to 400 pound, 2:3 parts of 600 pound.

If



# *The Golden Rule.*

375

If the number bee not exactly proportionall, yet there is a great abbreviation to be made of the worke of Reduction, Multiplication, and Division, in the working of most examples in the Golden Rule; as for example.

If 19 Barrels of Figgs cost 16 pound 12 shillings, what shall 58 Barrels cost; here dividing 58 by 19, the Quotient is 3, and 1 will remaine; wherefore I take 3 times 16 pound, 12 shillings, for 57 barrels, and I have to worke but for the one remaining; which is but to divide 16 pound, 12 shillings, by 19, makes 17 shillings, 9:19 of one shilling, the Totall is 50 pound, 13 shillings, 9:19 shillings.

<i>l.</i>	<i>s.</i>		
16	12	49	16 12
3	3		17 19
<hr/>		<hr/>	
49	16	50	13 9:19

If 356 elles of Holland cost 124 pound, 2 shillings, 3 pence, what will 7259 ells cost at that rate. Reduce 124 pound, 2 shillings 3 pence, into pence, makes 29787 pence: which multiply by 7259, makes 216223833  

I 4
pence,

pence, which divide by 359, makes 607370;  
which divided by 240 pence, makes 253  
pound, 170 pence, or 14 shillings 2 pence,

Example,

			29787	
			7299	
l.	s.	d.		
124.	2	3	<hr/>	
20			64549453	
<hr/>			14396136	
2482			111602	
112			48447	
<hr/>			14353	
4967			056	
2482			181	
<hr/>			8	
29787			<hr/>	
			216223833	

356

$$\begin{array}{r}
 7251 \\
 263101 \quad d. \\
 356 \mid 216223833 \quad (607370 \\
 00000000
 \end{array}$$

$$\begin{array}{r}
 21360282 \\
 24969 \\
 104 \\
 2
 \end{array}$$

---


$$216223833 \quad \text{The Proofs.}$$


---

$$\begin{array}{r}
 7201 \quad l. \quad 52 \quad s. \quad d. \\
 007370 \quad (2530 \quad 270 \quad (14 \quad 2 \\
 244440 \quad 222 \\
 222 \quad 2
 \end{array}$$

A second way more briefly to worke this question, or any other of like nature, is this: multiply the third number by the pounds and primes, or shillings and pence, and divide the Product by the first number, and the Quotient will bee the fourth number sought. In the last example, 7259 elles was the third number, which multiply by 124 l. 1 prime, or 3 s. makes 900841 l. 9 primes:

156

then

then also 7259 by 3 pence, makes 21777 pence; which divided by 240 makes 90 pound, 14 shillings, 9 pence; then adde those two sums into one Totall, makes 900932|6 primes, 9 pence; leave out 9, and then divide the residue by 336, makes 2530 pound, 7 primes, and 54:356; which with the 9 d. brings out the two pence, as in the last example.

*Example.*

$$\begin{array}{r}
 7259 \\
 1241 \\
 \hline
 7259 \\
 29036 \\
 14518 \\
 7259 \\
 \hline
 900841|9 \text{ d.} \\
 90|79 \\
 \hline
 900932|6
 \end{array}$$

d.	d.		
7259	2339	l.	1
3	227770	(90	7
-----	24440	+ 28	
21777	22	+ 28	

1 Prime	2882534	l.	8
2882534	(2530	7	
8009326	3566666	35555	
35555	333		

If 24 pieces of Raysons cost 25 pound, 8 shillings, what will 324 pieces cost: multiply 324 by 25 pound, 4 primes, makes 8229, 6 primes: which if you divide by 24, the Quotient will be 342 pound, 9 primes, or 18 shillings without Reduction, as in the example following.

Example.

Example.

$$\begin{array}{r} 324 \\ 254 \\ \hline \end{array}$$

$$\begin{array}{r} 1296 \\ 1620 \\ 648 \\ \hline \end{array}$$

$$83296$$

$$\begin{array}{r} 2 \\ 10620 \quad 1. \quad 1 \\ 82296 \quad (342 \quad 9 \\ 24444 \end{array}$$

$$\begin{array}{r} 222 \quad \text{Or,} \\ 3421.18 \text{ s.} \end{array}$$

If 25 pound gaine 1 pound, 8 shillings,  
what will 725 pound gaine at that rate?  
Multiply 725 by 1 pound 4 primes, makes  
10150; which divided by 25, makes 40  
pound, 6 primes, or 12 shillings.

$$\begin{array}{r} 725 \\ 10150 \\ \hline \end{array}$$

$$2900$$

$$725$$

$$10150$$

$$2555$$

$$22$$

And

And in this sort may divers other questions bee wrought in pounds and shillings without Reduction, which I thought good to give a taste of, but I will proceed here no further, because I purpose in the second part of this Booke to speake of them at large in the Treatise of *Decimal Arithmetick*, whereby all manner of questions are to be wrought by Multiplication and Division in pounds, shillings and pence, without Reduction, as shall appeare in their severall places following. And now I will proceede to speake something of the Rule of Three Direct and Convert in Fractionall operations, wherein I will be as brieft as I may, not intending to increase this little Treatise intended for a pocket booke, into over large a volume.

*The Rule of 3 in Fractions.*

If your 3 numbers given be all Fractions, multiply the third by the second, and divide the Product by the first, and the Quotient will bee the fourth proportionall number sought for.

*Example*

## Example.

If 3:4 of a yard of Holland cost 4:5 of a pound, what shall 5:6 of 1 yard cost at the rate? Multiply 5:6 by 4:5, makes 20:30 or 2:3, which divide by 3:4, makes 8:9 of one pound, or 17 shillings, 7:9 of one shilling.

20

8

4:5

2:3

5:6

3:4

30

9

If 7:8 of one elle of cloth cost 9:12 of a pound, what will 17 elles cost? Make 17 fraction wise, and multiply 17:1, by 9:12, makes 153:12, which will bee both abbreviated by 3, makes 51:4, which divided by 7:8 makes 408:28 parts of a pound, or in smaller termes 102:7; then divide 102 by 7, makes 14 pound, 4:7 of one pound for the price.

153

408

1

17:1

51:4

126 1

9:12

7:8

408 (14 4:7

12

28

288

2



*2 Rule.*

If all your 3 numbers given be Fractions, multiply the Numerator of the first fraction by the denominator of the other 2 fractions, for to make your Divisor. Then multiply the Denominator of your first Fraction by the Numerators of your other 2 Fractions, to make your Dividend, and then divide by your Divisor, and the quotient is the answer sought: but if your Divisor be greater then your Dividend, then the Quotient is a fraction lesse then a unite.

*Example.*

If 3:4 of a yard cost 4:5 of a pound, what cost 5 6 of a yard? Multiply 3, the Numerator of the first Fraction by 5 and 6, the denominators of the other two Fractions, makes 90 for your divisor; then multiply 4, the Denominator of your first fraction by 4 and 5, the Numerators of your other two fractions, makes 80 for your dividend: now because your Divisor is greater then your Dividend, place them Fraction wise thus, 80:90 of 1 li. or in least termes, 8:9 of a li.

Ex-

## Example.

If <sup>90</sup> 3 : 4 of a yard }  
 cost 4 : 5 of a pound } makes 8 : 9  
 what 5 : 6 of a yard }  
 80

Againe, if 7:8 of an elle cost 2:3 of a shilling, what will 34 elles cost.

If <sup>21</sup> 7 : 8 of an ell,  
 cost 2 : 3 of a shill.  
 what 34 : 1 ells cost.

16  


---

 204  
 34  


---

 544

1  
 129 s.  
 544 (25 <sup>19</sup>/<sub>21</sub>)  
 211  
 2

544

or 25 s. 19:21 of a s.

If 8 Pioners in 3:5 of a day doe make 12 Rods of Barricadoe, what will they make in 7 dayes.

If

If  $3 : 5$  of a Day  
 make  $22 : 1$  of a Wall,  
 what  $7 : 1$  of a Day?  
 770

222 Rods. Rod.  
 770 (256 2:3  
 333

If 12 hundred  $3:7$  of Allum cost 15 pound  
 $1:3$  what will  $324, 1:8$  of a hundred cost?  
 Reduce the whole and broken numbers into  
 broken, and work as is before taught.

12 3:7 15 1:3 324 1:8  
 7 3 8  


---

 87 : 7 46 : 3 2593 : 8

28  
 2088 2063  
 If 87:7 208524 1  
 cost 46:3 834040 (399  $\frac{1834}{1000}$   
 what 2593:8 208888  
 834946 2088  
 20

If

If 7:9 of an ell cost 8:11 of a pound, what will 15:13 of an ell cost? 1 pound, 1 shilling, 6 pence, 3:4 fere.

Example.

1001		72
7 : 9	77	15
8 : 11	13	<hr/>
15 : 13	<hr/>	360
1080	231	72
	77	<hr/>
	<hr/>	1080
	1001	

79 l.      l.  
 2080 (1 79:1001  
 2002

1 l. 1 s. 7 d. fere.

If 3:4 of a yard of Velvet cost 7:8 of a pound, what will 28 yards cost. 32 l. 13 s. 4 d.

Example.

$$\begin{array}{r}
 24 \\
 3:4 \\
 7:8 \\
 28:1 \\
 784
 \end{array}
 \qquad
 \begin{array}{r}
 28 \\
 28 \\
 \hline
 224 \\
 56 \\
 \hline
 784
 \end{array}$$

$$\begin{array}{r}
 1 \\
 66 \quad l. \\
 784 (32 \quad 2:3 \text{ of a pound.} \\
 244 \\
 2
 \end{array}$$

If 3 ells 1:8 cost 5:7 of a pound, what will the whole piece cost, containing 28 ells 1:2 at that rate? Answer.

ere.

of

.4d

7:2

2280

350

5:8

5:7

7:2

2280

1 l.

2280 (6 18:35

350

Or 10 l. 3 d. 3:7 of 2 d.

If

E

If 12 pound, 4 ounces of Quichanella cost  
4 pound, 3 shillings, 4 pence, how much will  
100 pound buy me at that rate? If 49:4 of a  
pound cost 25:6 of a pound sterling, what will  
600:6 parts of a pound buy? Answer.

	600	
If 25:6 of a pound		52
buy 49:4 of a pound,	276400	(26)
what 600:6 of a pound.	66600	
	176400	

The prooffe of this last example. If 100  
pound sterling buy me 294 pound of quichanella, how much shall 4 pound 3 shilling  
4 pence buy mee? to finde the value of  
hundred, the rate of one pound being given  
abate 2 places from 294, and it will be  
pound 94:100 parts of one pound: which  
multiply by 4 pound, 1:6, makes 12 pound  
25:100 parts, or one fourth for the prooffe

l. 12		l. 12
2:94	5	11:
4 1:6	294 (49	
<hr/>	66	<hr/>
1176		12

If 30 men cast a Trench in 3 dayes 2:3; how many men would cast it in 5:6 of a day here by comparing these proportions together, I find that 5:6 the third number, will desire a greater quantity of men to performe the worke, then 11:3 of a day will require; wherefore this proportion is reciprocall or backward; wherefore I multiply the 2 former numbers together, makes 330:3, or in smaller termes, 110:1; which divided by 5:6, makes 660:5; which divide by the Denominator 5, makes 132 men.

330	660	xx Men,
11:3	110:1	660 (132
30:1	5:6	555
3	5	

In the Backward Rule, or Convert in fractions, multiply the denominator of your third number by the Numerators of both your other numbers for dividend; then multiply the numerator of your third number by the Denominators of your other 2 numbers for divisor, and then worke as before.

## Example.

	1980	
If	1 1 : 3 of a day	4 3 M
give	30 : 1 men,	x 9 80 (13
what	5 : 6 of a day	x 5 5 5
	1 5	x 1

If when the Bushell of Wheate was sold for 4 shillings, the penny loafe weighed 48 ounces 1:2, what shall the same loafe weigh when Wheat is sold for 2 shillings, 8 pence the bushell? Multiply 48 by 13, makes your dividend 624; then 2 by 32, makes 64 for your divisor, and then divide 624 by 64 makes 9 ounces, 48:64, or 3:4 of an ounce.

	624	
If	4 8 : 1 pence	48 Ounces.
gives	1 3 : 2 ounces	624 (9. 3:4
what	3 2 : 1 pence.	64
	64	

If when one ounce of sterling silver was worth 1:4 of a pound the penny of silver weighed 30 graines, what shall the same penny weigh, when the ounce shall be worth 1:3 of a pound.



Example.

90  
 If 1:4 of a pound      x 2 Graines.  
 give 30:1 graines,      90 (22 1:2  
 what 1:3 of a pound.      44  
 4

If when a load of Hay was sold for 24 shillings, 8 pence, the penny bottle weighed 3 pound, 1:4, what shall it weigh, now the load is sold 37 shillings? Answer, 2 pound, 71:76 of a pound.

1040  
 If 80:3 shillings'      152 li.      li.  
 give 13:4 pound      x 040 (2 71:76  
 what 37:1 shillings      444  
 444

If 3 yards 1:8 cost 9 shillings, 9 pence, what will 380 yards cost at that rate? Reduce 3 yards 1:8 into eights; makes 25:8; then reduce 380 yards into eights, makes 3040:8 parts; then 9s. 9d. into pence, makes 117 pence; by which multiply 3040, makes 355680, which divided by 25, makes 14227 pence, 5:25 of one penny in

in the whole 59 pound, 5 shillings, 7 pence,  
5:25 or 1:5 of a penny. Behold the worke.

yard.	s.	d.	
3 1:8	9	9.	3 80
8	12		8
<hr/>			
25	117		3 040
			117
<hr/>			
20 205	d.		21280
355680	(14227 $\frac{25}{4}$ )		3040
255555			3040
2222			
			35568

1 d.					
2 69	l.	1	d.	s.	d.
242270	(59	2	19	or 5	7 1:5
24440					
22					

The prooffe of the former worke. If 3 yards cost 59 pound, 5 shillings, 7 pence 5:25 of one penny, what will 3 yards cost at that rate? reduce your coyne into 25, makes 355680; then reduce your 3 yards into 8, makes 3040; by which

vide 144227 pence, makes 9 shillings, 9 pence, as before.

14227	59	5. 7 5:25
25	20	
71140	1185	
28454	12	
355680	2377	
	1185	
	14227	

3x	d.	
5x2	9	s. d.
355680	(117	(9 9
304000	x2	
3044		
30		

If 34 ship Carpenters build a ship in 8 moneths 3:5, in how long time will 120 Carpenters build the same? Reduce 8 moneths 3:5 into fifths, makes 43:5; then multiply 34 by 43, makes 1462. Also put your divisor 120 into fifths, makes 600:5; then dividing of 1462 by 600, the Quotient will be 2 moneths 262:600 parts of one moneth, or in finallest termes 131:300 parts. And this Rule generall if one of your numbers be a Fraction, put alwaies your Divisor into the same fraction of your dividend, and the quotient will

K

be

194 *The double Rule of Three,*

be of the same denomination of your dividend, and so the answer was moneths, and parts of a moneth.

If 34 Carpenters aske 43:5 moneths, what 600:5 moneth.

34			
43			
102	2	<i>months.</i>	<i>month.</i>
136	2462	(2	131:300
1462	600		
	<i>months.</i>	<i>dayes</i>	<i>of a day</i>
makes 2	12		68:300

If 100 pound in 12 moneths gaine 10 pound, what will 336 pound gaine in 8 moneths? Take the tenth part of 336, which is 33 *li.* 6 primes, or 12 *s.* makes 369 *li.* 12 *s.*

Secondly, if 12 moneths gaine 33 pound 6 primes, what will 8 moneths gaine? I answer, lesse then 33 *li.* 6 primes; wherefore multiply by 8, and divide by the greater extreme, 12, makes 22 pound, 4 primes or 8 shillings, the answer.

If 120 Pioners in 6 dayes cast 300 rods of Trench, how many shall 600 men cast up in 4 dayes? If 120 give 30, what will 600 give? Answer, 1500 Rods.

Secondly

Secondly, if 6 dayes give 1500 rods, how many will 4 dayes give? I answer, lesse: multiply by 4, and divide by 6, maks 1000 Rods.

If 112 pound in 12 moneths gaine 100 *li.* what will 340 *li.* gaine in 7 months? Answer: 303 *li.* 4:7.

Secondly, if 12 moneths gaine 303 *li.* 4:7 what will 7 moneths gaine?

*Example.*

		7			
		<hr/>			
12	2125		5		
			6497	<i>li.</i>	<i>li.</i>
7	7		14878	(177	11:1
			8444		
			88		
84	14875				

*A generall Rule.*

Put alwayes your Divisor into the same Fraction of your dividend, and your Quotient will be of the same denomination, that your Dividend was: as in the last Example, 12 moneths was turned into sevenths, and also 303 *li.* 4:7 was turned into sevenths of pounds, and so the quotient of that division was pounds and the Fraction of a pound remaining.

If 7 pound in 13 moneths gaine 3 pound, in how long time will 340 pound gaine 60 *li.*? First, if 7 pound gaine 3 pound; what will 340 pound

pound gaine, makes 145 pound, 5:7 of a pound  
 Secondly, if 145 pound, 5:7 or 1020:7 aske 13  
 months, what will 60 pound, or 420:7 gaine.  
 Multiply by 13, and divide by 1020, makes 5  
 moneth 6:17 of a moneth.

If 600 great Horses in 5 daies do spend 1125  
 Bushels of oats, how many bushels will serve  
 1400 Horses for 22 Daies. First say, if 600  
 give 1125, what 1400, makes 2625 bushells.  
 Secondly, if 5 spend 2625 bushels, what will  
 22 daies spend? Multiply by 22, and divide  
 by 3, makes 11550 bushels.

*How to worke the double Rule at one  
 operation.*

This last question, or any other of like nature, which is wrought by the double Rule at 2 severall operations, may be answered at one in this manner: multiply the three latter numbers, to make your Dividend one into the other; then multiply the 2 former numbers for to make your Divisor, and then divide the Dividend by the Divisor, and the quotient will be the same, as in the last Example, 1125 being multiplied by 1400, makes 1575000; which againe multiplied by 22, makes your dividend 34650000. Then multiply your 2 former numbers 600 by 5, makes 3000 for the Divisor; and then dividing your Dividend by your  
 Divisor

# *The double Rule of Three.* 197

Divisor 3000, the Quotient will be 11550 bushels, as before at two operations.

*Example.*

$$\begin{array}{r}
 1125 \\
 \cdot 1400 \\
 \hline
 4500 \\
 1125 \\
 \hline
 1575000 \\
 22 \\
 \hline
 3150 \\
 3150 \\
 \hline
 34650000
 \end{array}
 \qquad
 \begin{array}{r}
 600 \\
 5 \\
 \hline
 3000
 \end{array}$$

xx Bushels.  
 34650000 (11550  
 33333000

If 35 s. in 7 months gaine 6 s. in how long time will 340 l. gaine 100 l. First, if 35 s. gaine 6 s. what will 340 l. require? Reduce 340 l. into shillings, and multiply by 6, makes 40800; which divided by 35, makes 1165 s. 5:7 s. Secondly, if 1165 s. 5:7 require 7 moneths, what will 100 l. require? Makes 12 moneths, 8:816 parts of a moneth.

*Fellowship without Time.*

This Rule differeth very little from the Rule

Rule of three; for in this Rule the sum of all the moneys disbursed, is the first number in the Golden Rule. Then the gaines or losse is the second number: the third number is each severall partners money disbursed: so that the Rule must be severally wrought for each severall Partners portion.

*Example.*

Foure Marchants made a company together; the first, *viz.* *A.* put in stock 74 pound, *B.* put in 90 pound, *C.* put in 100 pound, and *D* put in 120 pound, and they found that they had gained 84 pound; now the question is, what each man must have of the gaines, according to the proportion of his money disbursed. First, add all the moneys disbursed into one totall sum, *viz.* 74, 90, 100, 120. Totall is 384 for the first number in the Golden Rule. Then the second number is 84 pound, the gaines; and the third number is each particular mans stock; then worke as followeth.

*Example.*

If 384 pound gaine 84 pound, what will *A. B. C. D.* sums gaine to them?



A.	74	16.	72
B.	90	19.	264
C.	100	21.	366
D.	120	26.	96
2			

The prooffe. 384. 84. 768 (2  
384

The like reason is in losse, as is in gaines. Example : A certaine Shippe being in a tempest on the sea was forced to cast over board so much of her lading, as amounted unto the sum of 642 li, then there is great reason that all the Venturers should beare part of that losse, according to the proportion of his stock which he ventured. As suppose : *A.* ventured 700 pound, *B.* 530 pound, *C.* 640 pound, *D.* 800 pound : totall is 2670. Then say ; If 2670 pound loose 642 pound, what will each of *A.B.C.D.* lose ? as in the example following.

Example.

If 2670 pound lose 642 pound, what will *A.B. C.D.* summes lose to them ?

A.	700	168.	84
B.	530	127.	117. 267
C.	640	153.	257
D.	800	19.	96
2			

The prooffe. 2670 642 534 (2  
267

K 4

Foure



the question is, what each man must have of the gains. *Answer.*

If 57 gain 240, what will *A. B. C. D.* summe's giue to them.

A.	20	84	12	57
B.	15	63	9	
C.	12	50	30	
D.	10	42	6	

The prooffe.

	57		240		57	I
					57	

Four Merchants made a Company ; *A.* put in 320 pound, 13 shillings, 3 pence ; *B.* put in 840 pound, 16 shillings, 6 pence ; *C.* put in 560 pound, 18 shillings, 9 pence ; *D.* put 1000 pound: and in one year they found they had gained 4000 pound, 18 shillings, 6 pence: the Question is, what each man must have of the gaines. First, the totall summe of all their moneyes makes 2721 pound, 8 shillings, 6 pence, or 653142 pence, for the first number. Then reduce each severall mans money disbursed into pence for the third number, the second is the gaines also reduced into pence, and then worke according to the Rule.

*Example.*

If 2721 pound, 8 shillings, 6 pence gaine

K 5

40

400 pound, 18 shillings, 6 pence, what will  
A.B.C.D. summes gaine to them.

	d.	li.	s.	d.
A.	76931 makes	57	2	1
B.	201798 makes	123	17	3
C.	1 4525 makes	82	12	9
D.	24000 makes	147	6	5

---

*The prooffe.* 400 18 6

*Rules of Fellowship, with diversity  
of Time.*

Multiply each mans money disbursed by the time that it continued in stocke, and gather the totals, as in the last Rule, to make the first terme in the Golden Rule, and the gaines or losse is the second, and then each mans Product of money and time for the third terme in the Golden Rule, and worke as followeth.

*Example:*

Three men made a stock, A.B. and C. and in long continuance of time by dangerous adventures they gained, and got by prizes taken at Sea 3345 pound; A. put in stock 40 pound, 14 months; B. put in 50 pound, 8 months; C. put in 85 pound 6 moneths, what shall each man have of this gaines?

*Example*

Example.

<i>l. months</i>		<i>l. months</i>		<i>l. months.</i>	
A.	40 14	B.	50 8	C.	85 6
	14		8		6

560

400

510

If 1470 pound gaine 2345 pound, what will A. B. C. summes gaine them?

A.		560		893.	7	
B.		400		638.	2	21
C.		510		813.	12	
				I		

| 1470 | 2345

21 (1

21

The second question with more diversity of time, foure Marchants made a Company; A. put in 340 *li.* 19 *s.* 2 *d.* for 10 moneths; B. put in 930 *li.* for 9 moneths; C. put in 760 *li.* for 12 moneths; D. put in 583 *li.* 13 *s.* 4 *d.* for 5 months, wherewith they gained 740 *li.* now the Question is, to know what each man must have of this gaine.

Example.

*Fellowship with Time.**Example.*

	<i>li.</i>	<i>s.</i>	<i>d.</i>	<i>months</i>
A.	340.	19.	2.	10.
	10			

---

 6819

12 d.

---

 13640

6819

---

 81830

10 months.

---

 818300

---

	<i>li.</i>	<i>s.</i>	<i>d.</i>	<i>months</i>
B.	90			9

9

---

 8370

240

---

 334800

16740

---

 2008800 pence.

---

	<i>li.</i>	<i>s.</i>	<i>d.</i>	<i>months</i>
C.	760			12

140

---

 30400

1520

---

 182400

12 months

---

 2188800

D. 583

# Fellowship with Time.

205

D. 583 li. 13s. 4d. 5 months.

20

11673

12

23350

11673

140080

5 months.

700400

A. 8183 00

B. 20088 00

C. 21888 00

D. 7004 00

5716300

Cut-off two Cyphers from each number, and then worke as followeth.

If 57163 pence gaine 1776 pence, what will A. B. C. D. summes gaine them.

		l.	s.	d.	d.
A.	8183	105	18	7	4:5
B.	20088	260	00	11	3:5
C.	21888	283	6	11	4:5
D.	7004	90	13	4	4:5
			3	3	

Total 57163 | 740 | 00 | 0 | 15:5

25(3

Example

*Example.*

There is a Booty or Spoyle taken by 3 men worth 785 1 pound, and they agree to divide it in this sort ; A. is to have 1 halfe, B. 1 third. C. one fourth, what is each mans share.

To worke this Question, and all other of like nature, seeke a number which may bee divided by all the Denominators of your 3 Fractions in whole numbers, and the smaller such a number be that you choose, the more easie will your worke be ; which for to find, multiply your denominators of your fractions one into another : that is to say, 2 by 3 makes 6, and 6 by 4, makes 24, so 12, one halfe of 24 will be evenly divided by all the 3 Denominators, 2, 3 and 4. Wherefore I take 1:2 of 12 is 6, and 1:3 of 12 is 4, and 1:4 of 12 is 3, which added into one sum, makes 13 for the first number in the Golden Rule ; the second is 785 1 pound, & the third numbers are each severall mans portion imagined to be, viz. 4.3, and then worke as before.

If 13 give 785 1 pound, what will A. B. C. summes give.

A.		6		3623.	7		
B.		4		19615.	9		13
C.		3		1811.	10		
2							

The prooffe. | 13 | 785 1 26 (2  
13



*Example*

Four Marchants bought a house together, which cost 3000 pound; A. was to pay 1:2 and 6 pound overplus; B. 1:3 and 12 pound more; C. 8 pound lesse then 2:3; D. 1:4 with 20 pound overplus. Now the question is, what each Marchant must pay of this sum. Answer: First the pounds overplus must be subtracted from the sum given; and the pounds wanting must be added to the summe given; as for A. 6 pound, for B. 12 pound, for D. 20 pound, totall is 38 pound, to be subtracted then; for C. adde 8 pound, therefore subtract 30 pound from 3000 pound, there will remaine 2970 pound; then worke by the Rule of Fellowship, taking 12 for a number, which will be divided by all the denominators, 2, 3 and 4, viz. take for A. 6, for B. 4. for C. 8, for D 3; totall is 21 for divisor, the second number is 2970 pound, the third, each mans part imagined.

*Example.*

If 21 give 2970 pound, what will A. B. C. D, summes give?

A

A.	6	848	4:7	854	4
B.	4	565	5:7	577	5
C.	8	1131	3:7	1123	3
D.	3	424	2:7	444	2
		2		2	

---

21 | 2970 x4 (2 | 3000 x4 (2  
*The prooffe.* 7 7

The numbers found to A. are 848 pound 4:7, to which if you adde 6 pound, makes 854 pound, 4:7.

To B. 565 pound, to which 12 pound added makes 577 pound, 5:7.

To C. 1131 pound, 3:7, from which subtract 8, leaves 1123 pound, 3:7.

To D. 424 pound, 2:7, to which add 20 pound, makes 444 pound, 2:7; the which added into one total, makes 3000 pound, the prooffe.

And in this manner may infinite variety of questions bee propounded, and their doubts easily resolved; and here will I end concerning this Rule, and goe in hand with some pleasant Questions to bee wrought by position, which is the most excellent Rule of all other in Arithmetick, as shall appeare in the second part of this Booke in Decimall Arithmetick.

## Position.



*The Rule of Position requiring one number to be imagined, before the principall proportion can be found.*

**T**O worke by this Rule; Take any number at pleasure, which you shall imagine to be the true number sought, and proceed with it, as if it were the true number, wherein if you haue failed, by doubling or tripling according to the nature of the Question, you shall then attaine unto the true number desired by aide of the golden Rule, in manner following: for looke what proportion is betweene the false conclusion, and the false position, such proportion hath the given number, to the number sought.

*Example.*

*A. B and C. consent to buy a ship, which will cost them 2700 pound, so that B. must pay twice so much as A. and C. must pay 4 times so much as B. the Question is, what each man must pay of this summe? I suppose A. must pay 8 pound, then B. must pay twice as much as A which is 16 pound; then C. must pay 64 pound, which is 4 times as much as B. but yet 8 pounds, 16 pound, and 64 pound,*  
is

is but 88 pound and it should be 2700 pound, so that now I resort to the Golden Rule, and worke as followeth. If 88 pound come of my position 8 pound, of what comes 2700? Multiply 2700 by 8, and then divide by 88, makes 245 pound 40:88, or 5:11 of a pound for the part that *A* must pay; then *B* must pay 490 pound, 10:11 of a pound which is twice as much as *A*; and *C* must pay 1960 *li*, 40:11 of a pound, which is 4 times as much as *B*. The totall summe is 2700 pound. Behold, worke as followeth.

If 88 pound come of 8 pound, of what comes 2700.

$$\begin{array}{r}
 44 \\
 4088 \quad l. \\
 21600 \quad (:45 \quad 40:88, \quad \text{or } 5:11 \\
 8888 \\
 88
 \end{array}
 \qquad
 \begin{array}{r}
 2700 \\
 8
 \end{array}$$

2 Example. —————

21600

A Captaine of a Band of Men being asked what number of Souldiers were in his Band answered, I do not readily know; yet (quod pl he) of this I am certain, that the 1:2 & 2:3, and 4:5, and 1:6 of their number added together into one sum, are 384 men: now the question

is, what summe of men he had in his Band. I suppose he had 60 men, or 30 men in his Band, but the least number is best, viz. 30, whereof 1:2 is 15, and 2:3 is 20, and 4:5 is 24, also 1:6 is 5, their totall is but 64 men, but that should bee 84 men. Then say by the Golden Rule, as followeth.

If 64 come of 30, of what number comes 384.

384	512 men.
30	11520 (180
11520	6444
	66

Answer : hee had 180 men in his Band, whereof.

1:2 is 90 men,  
 2:3 is 10,  
 4:5 is 144,  
 1:6 is 30.

Totall is 384 men.

*The solution of this Question another way more briefe.*

Divide 384 by 64, maks 6 ; which multiply by 30, makes 180 men, as before.

3 Example.

A certaine man having spent 120 pound, had

had yet remaining 1:2 and 1:3 of his whole substance ; the question is, what his substance was. Answer : First, 1:2 and 1:3 is 5:6, which being taken from 6:6, the whole substance leaves remaining 1:6 ; therefore if 1:6 be 40 pound, what is 6:6? makes 240 pound.

$$\begin{array}{r}
 \text{li.} \\
 40 \\
 6 \\
 \hline
 240
 \end{array}$$

*4 Example.*

A Merchant bought 384 yards of broad Cloth of 3 severall prices, of each a like quantity, and he was to pay halfe as much more for the second sort, as he payed for the first, and twice as much for the third sort, as he payed for the second : now the Question is, what each sort cost him, and at what price every yard was rated unto him? I suppose the first sort cost him 4 pound, then the second sort cost him 6 pound, which is halfe as much more as the first, and then the third sort cost him 12 pound, which is twice as much as the second : the totall is but 22 pound, but it should be 248 pound: wherefore if 22 pound come of 4 pound, of what number comes 248 pound?

*Exam*

## Double Position.

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### Example.

xx		248 li.
9:2 (45	1:11	4
222		<hr/>
2		992

The first cost him 45 pound, 1:11 of a pound  
then the second sort cost 67 Pound, 7:11 of a  
pound; the third sort cost 135 pound, 3:11  
of a pound, totall is 248 pound: then divide  
384 by 3, and you shall find hee had 128 yards  
of each sort, and by practise, you shall finde the  
first sort cost 7 shillings, 1:2 d. a yard; the se-  
cond sort cost 10 shillings 7 pence a yard al-  
most, the third sort cost 21 shillings, 1 peny,  
1:2 d.

## Double Position.

### The Rule of double Position.

Suppose a number at pleasure, as in the last  
Rule of single Position, and proceed as if  
you had found the right number, and if by  
working you find the true number, then your  
Position was the right number, which doth  
seldome happen. First, if by your working  
here cometh out more then the true num-  
ber

ber, then note it thus  $-|-$  with a Crosse; if lesse, then thus  $---$  with a long line, which doth signifie lesse.

Secondly, suppose another number, greater or smaller, and worke as before, untill you do find the true number sought; which if you doe not find, see the difference also from the true number sought, and note it with the signe  $-|-$  or  $---$  as it shall be found.

Then thirdly, set your suppositions with their errors, more or lesse, as in the examples following.

Fourthly, multiply crosse the first position by the seconds error, and the second position by the error of the first, and then if the signes be both alike  $-|-$  or  $---$  abate the lesser from the greater, and the remaines shall be the dividend. Also the lesser error abated from the greater, leaves the Divisor; but if the signes be contrary one  $-|-$ , the other lesse, add both together to make the dividend, and add the two errors to make the divisor: and lastly, divide the Dividend by the Divisor, & the Quotient is the true number desired.

*1 Example.*

A certaine man seeing a purse in his friends hand, saith unto him: It seemeth unto me, that there is 100 Crownes in your purse. To whom



The other answered : Nay (quoth he) there are not 100 Crownes, but (saith he) if they were increased 1:2 and 1:3 and 1:4, and lastly, one Crowne overplus, then would they be just 100 Crownes.

I suppose there were 12 Crownes in his purse, to which if I adde one halfe, of 12, which is 6; and one third of 12, which is 4; and one fourth of 12, which is 3; and lastly, one Crowne more, the Totall will be but 26 Crownes, but they should be 100 Crownes, so that this error is too little by 74 Crownes, which I note thus:

$$74 \text{ ————— } 12$$

Secondly, I suppose he had 24 Crownes, to which I adde 1:2 of 24, which is 12, and 1:3, which is 8, and 1:4, which is 6: and lastly, one Crowne overplus, the totall is 51, but it should be 100 Crownes, so that this is an error of 49, too little, which I also note thus:

$$49 \text{ ————— } 24$$

588	74	49
74 — 12	24	12
49 — 24	—	—
1776	296	98
588	148	49
—	—	—
1188	1176	588
74	$\times 13$	
49	1188 (47.	13:25
—	255	
25	2	

The answer is ; that hee had 47 pound  
13:25 parts of a pound in his purse. The  
prooffe followeth.

1:2 of 47 li.	13:25 of a li.	is 13:19	
1:3 is	—	15:21	25
1:4 is	—	11:22	
and one Crowne overplus is	—	1:00	
		47:13	

## 2 Example.

Twenty yards of Sattin, and 12 shillings  
is equall unto 13 yards of Velvet lesse, 10 shil-  
lings ; the price of either sort is required.

To answer this, or any other like question,  
take any number for the price of a yard of the  
lesser

# *Double Position.*

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lesser number, which here is Velvet, which at 20 shillings a yard, lesse 10 shillings, amounteth unto 230 shillings. Now admit a yard of Sattin at 14 shillings, so 20 yards and 12 shillings amounteth unto 292 shillings; from which subtract 230 shillings, rests 62 s. more then the truth. Againe, rate a yard at 12 shillings, so the 20 yards and 12 s. makes 252 shillings; from which take 230. shillings, rests, 22 shillings more then the truth also. Now multiplying 22 by 14, and 62 by 12, the products are 308, and 744, and the difference of those numbers is 436, then take 22 from 62, rests 40 for divisor, by which divide the difference, makes 10 shillings, 9:10 shillings for the price of a yard of Sattin.

## *Example.*

$$\begin{array}{r}
 62 \\
 22 \quad 12 \\
 14 \text{ ---} \\
 \hline
 124 \\
 88 \text{ ---} \\
 22 \quad 62 \\
 \hline
 308 \quad 744 \\
 308 \\
 \hline
 436
 \end{array}$$

*Difference.*

$$\begin{array}{l}
 14 - 62 \\
 12 - 22
 \end{array}
 \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \text{Divisor.} \\ 40 \end{array}$$

$$\begin{array}{r}
 436 \\
 440 \\
 \hline
 L
 \end{array}
 \begin{array}{r}
 s. \quad s. \\
 (10 \quad 9:10 \\
 3 \text{ Exam}
 \end{array}$$

## 3 Example.

Otherwaies if 40, the difference of errors gaine 2, the difference of positions, then 62 the first error yeelds 3 and 1:10.

Or if 40 yeeld 2, what 22? makes 1 and 1:10; this taken from 12, or 3, 1:10 from 14, leaves 10, 9:10 for the price, as before.

## 4 Example.

A Carpenter was hired to worke 20 daies at 12 pence a day, but every day that hee was idle, he was to abate 18 pence of his wages, and in the end hee received but 8 shillings: now the Question is, how many dayes hee wrought.

First, suppose he wrought 12 dayes, which commeth to 12 shillings, then must the 8 dayes that he played, come to 12 shillings at 18 pence a day also: but this Question saith, there came due to him 8 shillings. Behold an error of 8 shillings too little.

Againe, I say that he wrought 14 dayes, amounting to 14 shillings: then 6 dayes that he played at 18 pence a day, commeth to 9 s; this taken from 14 shillings, leaves 5 shillings, and it should be 8 shillings, which is an error of 3 shillings too little. Now multiplying 12 by 3, and 14 by 8, the Products are

36,

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ter  
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mon  
penc  
Suga

36, and 112, and the excess is 76; which being divided by 5, the difference of the errors, quoteth out 15, 1:5 for the number of working dayes, and 4 daies 4:5 for the number of playing dayes.

$$\begin{array}{r} 12 \text{ --- } 8 \\ 14 \text{ --- } 3 \end{array} \left. \vphantom{\begin{array}{r} 12 \\ 14 \end{array}} \right\} 5$$

*Otherwayes.*

If 5, the difference of errors, yeeld 2. the difference of positions, what 8 the first error? makes 3, 1:5 to be added to 12.

Or if 5 be 2, what is 3? makes 1, 1:5 to be added to the second position 14, whereby all three waies, the numbers of the dayes he wrought are found out.

*Barter or Exchange.*

**T**WO men Barter, one hath Ginger of 10 pence a pound ready money, and in barter he will sell it for 12 pence a pound. The other hath Sugar of 12 pence a pound ready money, but in barter hee will sell it for 14 pence a pound; the Question is, how much Sugar will pay for 756 pound of Ginger?

L 2

First,

First, put your price of your Ginger into pence, makes 9072 pence; which divide by 14 pence, makes 648 pound of Sugar, which must be given for 756 pound of Ginger, at 12 pence the pound.

*2 Example.*

Two Merchants will barter, one hath raysons of 34 shillings the hundred ready money, and in barter he will sell them for 40 shillings: the other hath Nut-megs of 4 shillings the pound ready money, how shall hee set his Nut-megs to make the like profit? Put your coyne into pence, and say; if 408 pence bee 480 *d.* what is 48 *d.* Multiply 480 by 48, and divide by 408, makes 56 *d.* 24:51 of one penny for the price of the Nut-megs; viz. 4 s. 8. *d.* 1:2. of a pound.

*3 Example.*

Two Merchants will barter, one hath Holland of 2 shillings 7 *d.* the ell ready money, which he will sell in barter for 2 shillings, 10 pence the ell, and yet he will gaine privately 10 *li.* in 100 pound over that gaine; at what price must he then set his Holland? Answer: set down 2 shillings 10 pence, in pence, makes 34 pence; of which take the tenth part, which is 3 pence, 4:10, or 2:5, and adde

adde to 34 pence, makes 37. pence 2:5, of a penny for the price, to sell one ell to make that gaines. Now the other Merchant hath wooll at 7 shillings a Todd ready money, how shall he sell his wooll to make like profit, that hee be not deceived in the bargaine? If 31 pence be 57 pence, 2:5, what is 84 pence? Multiply 374 primes by 84, makes 31416; which divide by 31, makes 101 pence, 3:10 penny, or 8 shillings, 5 pence, 3:10 of one penny, which is the price for him to sell his wooll to make like profit.

*Example.*

$$\begin{array}{r} 34 \\ 34 \\ \hline 374 \end{array}$$

$$\begin{array}{r} 374 \\ 84 \\ \hline 1496 \\ 2992 \\ \hline 31416 \end{array}$$

$$\begin{array}{r} 1 \\ 103 \\ 374 \times 6 \\ 374 \times 5 \\ \hline 373 \end{array}$$

*d.* (101. 3:10 of one penny.

*4 Example.*

Two Merchants will barter, one hath Sugar  
L 3

gar of 6 pound 4 shillings ready money, and he will sell it for 7 pound the hundred. The other hath Ginger of 4 pound 6 shillings the hundred, and in barter he will sell it for 5 *li.* the hundred; now the question is, at what rate each of them doth gaine *per cent* and which hath the advantage of the other?

First, if 6 pound 2 primes, gaine 8 primes, what will 100 pound gaine? Multiply 8 primes by 100, makes 800 primes; then add 2 or 3 cyphers more to it, which divide by 6:2 primes, makes 12 *l.* 9 primes, 0:31 of a prime, or neere 12 *li.* 18 shillings, which the first man doth gaine *per cent*.

Secondly, if 4 *li.* 2 primes gaine 7 primes, what will 100 pound gaine? Multiply 7 primes by 100, and adde 2 Cyphers more, makes 70000, which divide by 4:3 primes, makes 16 pound, 2 primes, 34:43 of a prime; from which subtract 12 pound. 18 shillings, 8 pence, rests 3 pound 7 shillings, 7 pence, which the second man hath gained more then the first gained.

### 5 Example.

Two Merchants barter, one hath a certaine number of pieces of Sakkins at 18 shillings a piece, for the which the other doth give him 1806 ells of linnen Cloth, at 16 pence the ell, and

22 p  
ter h  
othe  
the p  
sell it  
is, l  
poun



and yet 30 *li.* in ready money ; the question is, how many pieces of Sakkin he had. First, find what 1806 ells of linnen Cloth cost by Practice ? makes 120 pound, 8 shillings ; to the which adde 30 *li.* makes 150 pound, 8 s: then divide 150 pound, 4 primes, by 18 shillings, or 9 primes, makes 167 pieces of Sakkin, and 1:9 of a piece.

*Example.*

30	<i>li.</i>	1
18060	(120.	4
15555	30	

150.

661	Pieces,	Piece.
1504	(167	1:9
999		

*6 Example.*

Two men will barter, one hath Pepper of 22 pence the pound ready money, but in barter he will sell it for 27 pence the pound : the other hath Sinamond of 3 shillings, 6 pence the pound ready money, and in barter he will sell it for 4 shillings the pound : the question is, how much Sinamond will pay for 384 pound of Pepper at that rate ? First, 384

L 4 .                      pound

pound of Pepper at 27 pence the pound is 43 pound 4 shillings; which divide 864 shillings by 4 shillings, makes 216 pound Sina-  
mond, which he must give.

*7 Example.*

If 4 English elles makes 5 yards, and 13 yards, makes 50 Pawnes at Geanes, how many Pawnes is in 100 elles English. If 5 be 4, what is 13, makes 10, 2:5. Secondly, if 10, 2:5 be 50, what is 100, 480, 0:13.

*8 Example.*

Every 4 elles at *Antwerpe* maketh 5 at *Frankford*, and 25 there makes 24 Braces at *Luques*, the Question is, how many braces in 100 in *Antwerpe*. If 25 be 24, what is 5? makes 4, 4:5. Secondly, if 4 be 4 4:5, what are 100, makes 120.

*9 Example.*

If 3 yards at *London* be 4 elles at *Antwerpe* how many yards at *London* make 84 elles at *Antwerpe*. If 4 be 3, what 84? makes 63, ells,

*10 Example.*

At *Roan* 112 elles make but 98, and 100 ells at *Roan* is 112 at *Sivil*, how many of ours in 100 ells of *Sivil*. If 98 *Roan* be 112 ells, what

what 100 *Roan*? makes 114 ells, 1:7 of an ell.  
Secondly, if 112 ells be 114, 1:7, what is 100  
*Sivil*? makes 102, 19:25.

11 Example.

If 67 yards at *London* be 100 in *Venice*;  
how many are 7894? multiply by 67, makes  
5288 yards, 98:100 parts.

12 Example.

A Merchant doth deliver 400 pound ster-  
ling in *London* by exchange for *Antwerpe*, at  
23 shillings, 5 pence the pound sterling, the  
question is how much Flemish money he shall  
receive at *Antwerpe*: put your 23 s. 5 d. into  
pence, makes 281 pence; which multiply by  
400, makes 112400 pence; which divide by  
240, makes 468 pound, 6 shillings, 8 pence  
which he must receive at *Antwerpe*.

Example.

s.	d.		
23	5		
12		281	
<hr/>		400	
276		<hr/>	
5		112400	
<hr/>			
281			
2	d.		
26088		l.	1
1124000	(468.	3	d.
244440			
222		L 5	13 Exam

## 13 Example.

If 100 pound sterling be 14 pound, 6 s., 4 d. pence *Flemmish*, what is one pound sterling worth? Reduce your coyne 134 pound, 6 s. 4 pence, into pence, makes 32236; which divided by 100, makes 322 pence, 9:25 pence, or 26 shillings, 10 d. 9:25 of one penny, for one pound sterling.

If one pound sterling be 1 pound, 14 s., 7 pence, *ob. Flemmish*, how much sterling money is in 100 *li. Flemmish*? Reduce 100 pound into pence, makes 24000 pence; then put it into half pence, makes 48000 half pence; then put 1 *li.* 14 s., 7 d. *ob.* into halfe pence, makes 831; by which divide 48000, makes 57 pound, 15 shillings, 1 penny almost, and so much sterling money is in 100 pound of *Flemmish* money at that rate.

---

### Of Gaine, and Losse.

If 13 pieces of Canvas cost 17 pound, 12 s. How may I sell them to gaine 8 pound in the hundred? Multiply 176, by 8 makes 1:408, or 1 *li.* 8 s. 2 d. almost, and so much must he sell them for to gaine 8 pound in the hundred.

If 17 pound, 12 shillings gaine 1 pound, 8  
shil.

shillings, 2 pence, what will 100 pound gaine?  
Multiply 1 *li.* 8 *s.* 2 *d.* in Decimals by 100,  
and divide by 17 pound, 6 primes, makes 8 *li.*  
in the 100, the prooffe.

*Example.*

$$\begin{array}{r}
 17600 \\
 \dots 8 \\
 \hline
 1408
 \end{array}
 \qquad
 \begin{array}{r}
 1408 \text{ (8 li.)} \\
 176
 \end{array}$$

A Merchant hath lent 630 pound at interest for 10 pound in the 100, for three yeares, interest upon interest, the question is, unto what summe it will amount unto at the end of the terme? Answer: Take the tenth part, and adde it into one totall 3 severall times, makes 838 *li.* 10 *s.* 7 *d.* 1:5 of a penny, for the principall and interest, at the rate given, to be paid at the end of three yeares.

*Example.*

1. yeare.		2. yeares.		3. yeare.
630		630		76230
630		6930		76230
<hr/>		6930		<hr/>
6930		—		838530
		76230		

2 *Example.*

## 2 Example.

A Merchant receiveth for principall and interest 838 pound, 10 shillings, 7 pence, 1:5 of a penny at 10 *li.* in the hundred compound interest, which was for money delivered out for three yeares; now the Question is, what was the summe of money that was lent? To doe this, or any other the like Question, divide the summe of money received by 110 three severall times, and the three quotients will shew the yearly increase of the money lent, and the last quotient will be the answer to the question, or the money disbursed, as in the Example following, which is the prooffe of the former question.

## Example.

$$\begin{array}{r}
 838530 \quad (76230 \quad (6950 \\
 \text{XXXXX} \quad \text{XXXXX} \\
 \text{XXX} \quad \text{XX} \\
 3 \\
 6930 \quad (630 \text{ pound lent.} \\
 \text{XXXX} \\
 \text{X}
 \end{array}$$

## 3 Example.

A Merchant lent 100 pound for 7 yeares at 10 pound in the hundred Compound Interest, the Question is, what he shall receive at the end of the terme.

Ex.

*Example.*

100			
10		0.	
<hr/>			
			one yeare 100 li.
110		0	
11		00	
<hr/>			
			2 yeares, 121 li.
121		00	
12		100	
<hr/>			
			3 yeares, 133 li. 2 s. 0 d.
133		100	
13		3100	
<hr/>			
			4 yeares, 146 li. 8 s. 2 d.
146		4100	
14		64100	
<hr/>			
			5 yeares, 161 li. 1 s.
161		05100	
16		105100	
<hr/>			
			6 yeares, 177 li. 3 s. 1 d. ob.
177		156100	
17		71561	
<hr/>			
			7 yeares, 194 li. 17 s. 5 d.
194		871710	

Makes at 7 yeares end 194 li. 17 s. 5 d.

*How to worke Compound Interest at any rate per cent.*

What is the principall and interest of 352  
yound,

pound, put out at 8. *li.* in the hundred compound Interest, to be paid at the end of two yeares? Adde 2 cyphers to 352 pound, makes 35200; then place your Interest 8 under the lowest Cypher next the right hand, and multiply 352 by 8, placing the Product under the line, and that will be the Interest: which added unto the summe lent, makes the totall of the principall and interest, and so worke for the second, third, and fourth yeare, as in the example.

<i>1. yeare.</i> $\begin{array}{r} 35200 \\ \dots 8 \\ \hline 2816 \\ \hline 38016 \end{array}$	$\begin{array}{r} 3801600 \\ \dots \dots 8 \\ \hline 504128 \\ \hline 4105728 \end{array}$
or 380 <i>li.</i> 3 <i>s.</i> 2 <i>d.</i>	or 410 <i>li.</i> 11 <i>s.</i> 5 <i>d.</i>

First, I multiply 35200, by 8, makes 2816, which I adde unto 35200, makes 38016; then I multiply 3801600 by 8, makes 4105728, or 11 *s.* 5 *d.* abating 4 figures for the 4 Cyphers, which I added to the summe for to find out the prime line, as appeareth in the example; and so of any other summe or rate in the hundred.

At 17 pound the hundred *per annum* compound



pound interest, what will 879 pound amount unto, to be all forborne unto the end of five yeares? Adde 2 cyphers to your summe given, and multiply by your Interest 17, and adde into the principall, and so worke 5 yeares, and the last product will be the summe of money to be received, viz. 1927 li. 3. s. 5. d.

*Example.*

87900

17

6153

879

First yeare.

1028

4300

17

171

9901

2

843

Two yeares.

1303

263100

17

184228417

2032631

Three yeares.

1407

81782700

17

1985

4724789

407

817827

Four yeares.

164718cc.

232

*Gain and Lasse.*

1647		1468575900
		17

115		3002800313
164		714685759

1927		1618.33803	five yeares.
------	--	------------	--------------

li.	s.	d.
-----	----	----

1927.	3.	5.
-------	----	----

If a Merchant buy a parcell of Holland, at 3 *li.* 6 *s.* the piece ; and another parcell at 4 *li.* 2 *s.* the piece ; the third sort at 4 *li.* 10 *s.* the piece ; the fourth sort at 5 *li.* the piece ; how may he sell 40 pieces, of each sort 10 pieces to gaine 18. *li.* in the hundred, and give 9 months time for the payment? as in the example following.

*Example.*

10 Pieces at	3.	6. a piece,	33. 0.
10 Pieces at	4.	2. a piece,	41. 0.
10 Pieces at	4.	10. a piece,	45. 0.
10 Pieces at	5.	0. a piece,	50. 0.

The summe is. 169. 0.

16900

18

1352

169

199[4

Take

Take the 3:4 of the Interest, makes 191 pound, 16 shillings, 3 pence, 2:5 of one penny, to sell to gaine 18 pound in the hundred, for to give 9 moneths time.

A Merchant sold 300 quarters of Wheat, cost him 352 *li*, ready money, and lost 7 *li*. in the hundred, what did one quarter cost him, and at what rate did he sell a quarter, to lose 7 *li*. in the hundred? Take the interest at 7 pound in the hundred; which is 4 *li*. 12 *s*. 9 pence, 3:5, which subtract from 352 pound, makes 327 pound, 7 shillings, 2 pence, 2:5 of a penny, and divide the remainder by 300, makes 1 pound, 1 shilling, 10 pence for the price sold: Secondly, divide 352 pound by 300, makes 1 pound 3 shillings, 5 pence 06. for the price which it cost him.

Rie sold for 3 shillings a bushell loseth 20 pound in the hundred, what will then be lost, if it be sold for 3 shillings 6 pence a bushell? If 3 shillings be 80 pound, what is 3 shillings 6 pence? Multiply 80 pound by 31:2, or by 3 *s*. 6 pence, makes 2800; which divide by 3, makes 93 *li*. 1:3. Or otherwise, if 36 pence be 80 pound, what is 42 pence? Multiply 80 by 42, and divide by 36, makes 93 pound 1:3 of a pound as before.

If in one ell of Cloth sold for 3 shillings, 2 pence, there were gained after the rate of  
10 pound

10 pound in the hundred, what did that ell of cloth cost? Divide 385, or 38 penny 1:2 by 110, makes 35 pence, that the ell cost.

$$\begin{array}{r} 3 \\ 3850 \text{ (35 d.} \\ \times 110 \\ \hline 42350 \end{array}$$

If one yard of Holland cloth cost 2 shillings, 11 pence, how many yards shall I buy for 34 pound, 6 shillings, put it into pence, makes 832 pence; which divide by 35 d. makes 235 yards, 1:5 yard.

*How to gaine any rate in the Hundred you desire.*

Put your price that one yard, ell, pound, or picce doth cost you, into pence; and then for 10 pound in the hundred, take the tenth part of that sum, which is the same number, placed one place neerer to the right hand, and that is the profit or Interest; which added up into the price given, makes the price to sell one yard, pound, ell, or picce, to gaine 10 pound in the hundred ready money.

*Example.*

If one ell of Holland cloth cost 3 shillings, 9 pence, how may I sell to gaine 10 pound

per.

*per cent.* ready money? Put 3 shillings 9 *d.* into pence, makes 45 pence: then take the tenth part of 45 pence, which is 4 pence 5:10; for one halfe, makes 49 *d.* 1:2 for the price to sell an ell to gaine 10 *li. per cent.*

*Example.*

	<i>s.</i>	<i>d.</i>	<i>d.</i>	
45	makes 4.	1.	1:2	
4   5	<i>d.</i>			
<hr/>	74	<i>s.</i>	<i>d.</i>	<i>d.</i>
49   5	7   4	makes 6.	9.	2:5
	<hr/>			
	81   4			

If your price you would gaine, be not 10 pound in the hundred, then adde 2 Cyphers to your number of pence given, and multiply that number by your Interest, omitting to multiply by the cyphers, and the product under the line is your Interest or gaine, which added up into one summe; makes the price to sell one yard, ell, pound, or piece, to gaine according to the rate desired, example.

If one pound of Cloves cost 4 shillings, 10 pence, how may I sell to gaine 9 *li. per cent.* ready money? Put 4 *s.* 10 *d.* into pence, makes 58 *d.* then add 2 cyphers, makes 5800; which multiply by 9, makes 522, or 5 pence, 22:100 parts of one penny; which added up to the upper

upper numbers, is 63 *d.* 22:100 parts of one penny, or 5 *s.* 3 *d.* 1:5 of a penny for the price to sell one, to gaine 9 pound in the hundred,

At 9 pound in the hundred.

$$\begin{array}{r}
 5800 \\
 \dots 9 \\
 \hline
 522 \\
 \hline
 6322
 \end{array}$$

or 5 *s.* 3 *d.* 22:100.

At 12 pound in the hundred.

$$\begin{array}{r}
 4700 \\
 \dots 12 \\
 \hline
 494 \\
 7 \\
 \hline
 5264
 \end{array}$$

or 4 *s.* 2 *d.* 16:25 *d.*

If one piece of Raysons cost 18 shillings, 9 pence, how may I sell to gaine 18 pound in the hundred, ready money? put your money into pence, makes 225 pence, to which adde 2 cyphers, makes 22500; which multiply by 18, makes 40:50, or 40 *d.* 06. which added in to the price makes 265 *d.* 06. for the price to sell one piece to gaine 18 *lb.* in the hundred.

*Example.*

$$\begin{array}{r|l}
 225 & 00 \\
 \dots & 18 \\
 \hline
 18 & 00 \\
 22 & 5. \\
 \hline
 \end{array}$$

21  
265 ( 22s. 1 d. ob. for the price of 1 piece.  
x22  
x

A Merchant lent wares for 10 pound in the hundred profit for 12 moneths, and at the end of 6 months he received principal and interest 356 li. the question is, what was the summe lent? Answer: adde 2 Cyphers to 356 li. and divide by 105 pound, which is 6 months interest and principall, makes 339 pound, 1:21 parts of a pound for the summe lent.

Example.

9		
4155	li:	li
35600	(339	5:105
10555		
100		
x		

	3390   5	
Interest for	339   05	yeares.

Interest for	169   525	1:2 yeare.
--------------	-----------	------------

The prooffe.	356   00
--------------	----------

Equation

## Equation of Payment.

*The Rule of payment is to bring divers payments due at severall dayes, to be payed at one entire payment.*

**A** Merchant is to pay at divers payments 600 pound: viz. 200 pound present, 200 pound at 8 moneths, 140 pound at 6 months, and 60 pound at 2 moneths: now he is willing to pay all at one payment, what time must be given? The ready money being omitted, set the rest as Numerators thus, 200: 600: 140: 600: 60: 600 parts, which in their least termes abbreviated, makes 1:3 7:30 and 1:10. Now multiply 1:3 by 8, makes 2, and 2:3; secondly, 7:30 by 6, makes 1 and 2:5; thirdly, 1:10 by 2 makes 1:5; totall is 4 moneths, & 4:15 of a month for the time sought.

*Example.*

200:8 3

105:7 5

15:1 5

---

320 75

2

320 (4 moneths, 20:75

75

A Merchant hath owing him 75 2 pound, to be payd 200 pound present; 200 *li.* at 3 moneths, 130 *li.* at 5 moneths, and the rest at



# Equation of Payment.

239

12 moneths ; now at what time ought this money to be paid all at one payment ?

*Example.*

200:752	130:752	222:752
3	5	12
600	650	2664
2664		
650	15 moneths. dayes.	
600	3914 ( 5. 6.	
	751	
3914		

A Merchant hath owing unto him 782 li. 12 shillings, to be paid 1:3 at 4 moneths, 1:2 at 7 moneths, the rest at 12 moneths, what time must it be all at one payment.

*Moneths.*

1:3	4	1	1:3
1:2	7	3	1:2
1:6	12	2	0:0
		6	5:6

Makes 6 moneths, 5:6 of a moneth.

Wines worth 14 pound ready money are sold for 16 pound; to pay 1:3 at 3 months, 1:2 at 4 moneths, and the rest which is 1:6 at 12 moneths ; the question is, what is gained in 100 pound in 12 moneths.

*moneths.*

*Equation of Payment.**moneths.*

1:3	3	1	0:0
1:2	4	2	0:0
1:6	12	2	0:0
			<hr/>
			5 0:0

Makes at 5 pound in the hundred.

Sugars worth 21 pound ready money are sold for 25 pound, to pay 1:5 ready money, 1:8 at 4 moneths, 3:10 at 7 moneths, 3:8 at 15 moneths; the question is, at what rate *per cent. per annum* they were sold?

*moneths.*

1: 8	4	0	1: 2
3: 0	7	2	1:10
3: 8	15	5	5: 8
			<hr/>
			8 9:40

Makes 8 pound, 9:40 *per cent.*

*Allegation Mediall.*

**A**llegation is an Art teaching to combine or knit together divers things unequally priced, and thereby to find an equall price of any part of the said mixture. Allegation Mediall,

diall, is that which by the augmenting the quantity of every severall portion to be mixed by his own price, and dividing the sum of all the Products by the total of the several portions to be mixed, findeth the thing sought.

*Example.*

Three severall sorts of Barley are to be mixed; *viz.* 34 bushels at 18 *d.* and 76 at 20 *d.* and 100 at 22 *d.*; the question is, what one bushell of that mixture will be worth? First, multiply each number by his price, *viz.* 34 by 18, 76 by 20, and 100 by 22, makes 612, 1520, and 2200, the Totall is 4332: then adde the number of bushels into one summe, makes 210; by which divide 4332 *d.* makes 20 pence, 132:11 of one penny for the price of one bushell so mixed.

*2 Example.*

If you will mixe 30 gallons of Sack at 4 *s.* a gallon, with 150 gallons of white Wine at 2 *s.* the gallon, what will a gallon of that mixture be worth? Multiply 30 by 4, makes 120 *s.* also 150 by 2 *s.* makes 300 *s.* Totall is 420 *s.* then adde 0 and 150, makes 180 Gallons; by which divide 420 *s.* makes 2 *s.* 1:3 of a shilling, or 2 shilling 4 pence, for the price of one gallon so mixed.

*M*

*Example.*

*3 Example.*

Admit there were 6 portion of Silver of 7 ounces fine, 12 of 8 ounces fine, and 25 of 10 ounces fine, which are to be mingled with 10 pound of Copper, what is a pound of that mixture worth? For answer: multiply 6 by 7, makes 42; also 12 by 8 makes 96, and 25 by 10, makes 250, the totall is 388, which being divided by 53, the totall of 6, 12, 25 and 10 makes 7 ounces, 17:53 of an ounce; and so much fine is a pound of that mixture.

*4 Example.*

A Merchant hath 6 severall sorts of Spices, of which he will sell, of each an equall quantity, of severall prices, for the summe of 323 *li.* 8 *s.* viz. Sinamond large at 4 *s.* 6 *d.* a pound; Nutmegs Case at 3 *s.* 8 *d.* a pound; Large Maces at 8 *s.* a pound; and Pepper Case at 2 shillings 2 pence a pound, Pepper Callico at 22 pence the pound, and Ginger large at 10 pence a pound; the question is, how many pound he must have of each to make the just summe of 323 *li.* 8 shillings? Answer: first, put your money into shillings, makes 6468 *s.* Secondly, put all your prices of the Spices into one summe, and by that summe, which is 21 shillings, divide 6468, makes 308 pound which he must sell of each.

*Example*

*Example.*

	s.	d.
1	4.	6.
2	3.	8.
3	8.	0.
4	2.	2.
5	1.	10.
6	0.	10.
<hr/>		
21	00	

$\begin{array}{r} x \\ 6468 \end{array} \begin{array}{l} li. \\ (508 \end{array}$   
 $\begin{array}{r} 2xxx \\ 22 \end{array}$

	li.	s.	d.
1	69.	6.	0.
2	123.	4.	0.
3	56.	9.	4.
4	33.	7.	4.
5	28.	4.	8.
6	12.	16.	8.
<hr/>			
	323.	8.	0.

*Allegation Alternat.*

**A**llegation Alternat is that, which altereth the places of such excesses as commonly fall betweene the meane price, and the extreames, in which counter-change, if the extreames be equall, then the difference between the meane price, and lesser extreame is to be set against the greater extreme, and of the contrary if otherwise.

M 2

*Example,*

## 1 Example.

White Wine of 20 *d.* the gallon is to be mixed with Sacke of 3 *s.* a gallon, so that there must be mixed 100 gallons to make the price to be but 2 shillings, 4 *d.* the gallon, the question is, how much of each sort must be taken.

The numbers set downe, as in this

Example thus,

the difference of

20 the lesser ex-

treame from 28, is 8; also the difference of 36

the greater extreame is also 8, so that I finde

you must take as many of one sort, as of the o-

ther to make this mixture: *viz.* 150 Gallons

of each sort.

$$\begin{array}{rcl}
 & d. & \\
 28 & | \ 36 \text{ ---} & | \ 8 \\
 & | \ 20 \text{ ---} & | \ 8
 \end{array}$$

## 2 Example.

White Wine of 16 *d.* a gallon is to be mixed with Sacke of 40 *d.* the gallon, how many gallons must be taken of either sort, so that 120 gallons may be of 30 pence the gallon.

The numbers being set downe, as in this example, the difference

of 16 the lesser extreme from 30 the

meane price, there will remaine 14, which I place against 40; then take the difference of 40, the greater extreme,

from

$$\begin{array}{rcl}
 & & \\
 30 & | \ 40 \text{ ---} & | \ 14 \\
 & | \ 16 \text{ ---} & | \ 10
 \end{array}$$

from 30 the meane Price, there will rest 10 to be linked with the lesser extreme ; whereby I find, that so often as I take 14 gallons of Sacke I must take 10 gallons of White Wine to make the mixture ;

wherefore if 24 gal-  
lons be 120, what is

long be 120, what is

$$\begin{array}{l} \text{---} \left\{ \begin{array}{l} 14 \mid 70 \\ 10 \mid 50 \end{array} \right. \end{array}$$

3 Example.

A certaine Clothier is desirous to mingle  
144 pound of Wooll of 4 sorts : *viz.* Blew  
wooll of 16 s. the stone, red wooll of 11 s. the  
stone, greene wooll of 12 s. white wooll of 9 s.  
the stone, how many stones of each shall hee  
take, that one stone of the mixture may be  
worth 14 shillings.

The counter-change being made, according to the Rule, as is in the Margent, it is plaine, that so often as you take 5 of Blew, you must take 3 of Greene, and 2 of Red, & 2 of White.

{	16.	5
	12.	3
	11.	2
	9.	2

Therefore if 12 be 144, what

$$14 \left\{ \begin{array}{ll} 16. & 5 \\ 12. & 3 \\ 11. & 2 \\ 9. & 2 \end{array} \right.$$

is  $\left\{ \begin{array}{l} 5. \\ 3. \\ 2. \\ 2. \end{array} \right. \begin{array}{l} 10 \\ 36 \\ 24 \\ 24 \end{array}$





THE  
SECOND  
BOOKE.

Containing a Treatise of  
Decimall Arithmatick.

Wherein is taught how to  
worke all manner of operations  
in *Decimall Arithmatik*, more speedy  
and easie; then by vulgar *Arithma-*  
*tick*; and first of the *Deci-*  
*mall Table*.

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LONDON, .

Printed by *John Dawson*, and are to be sold  
by *Michael Sparke* at the *Blue Bible*  
in *Greene Arbour*. 1646.



## THE VSE OF THE DECIMALL TABLE.

**T**He Decimal Table following doth begin from one Farthing unto a Prime, or 2 shillings: so that if you have a Decimall Fraction given, which doth containe 90625 sixths: search it in the Decimall Table, and you shall find it over against 21 pence, 3 farthings, and that is the value of that Fraction given.

Or if you would know how to set out 16 pence halfe-penny in Decimalls; search in the Table against 16 *d.* 2. *q.* and you shall find 6875 fifths for the Decimall sought.

But if you would set out any number of shillings from one shilling unto one pound, or 20 shillings; search in this little Table following, and you shall find your desire. As if you would set out 15 shillings in Decimalls, you shall find 7 primes, 5 seconds for 15 shillings, and so of any other summe, as in the Example following.

*Example.*

Example.

Shil.	I. 2
1	05
2	10
3	15
4	20
5	25
6	30
7	35
8	40
9	45
10	50
11	55
12	60
13	65
14	70
15	75
16	80
17	85
18	90
19	95
20	100

M 5.

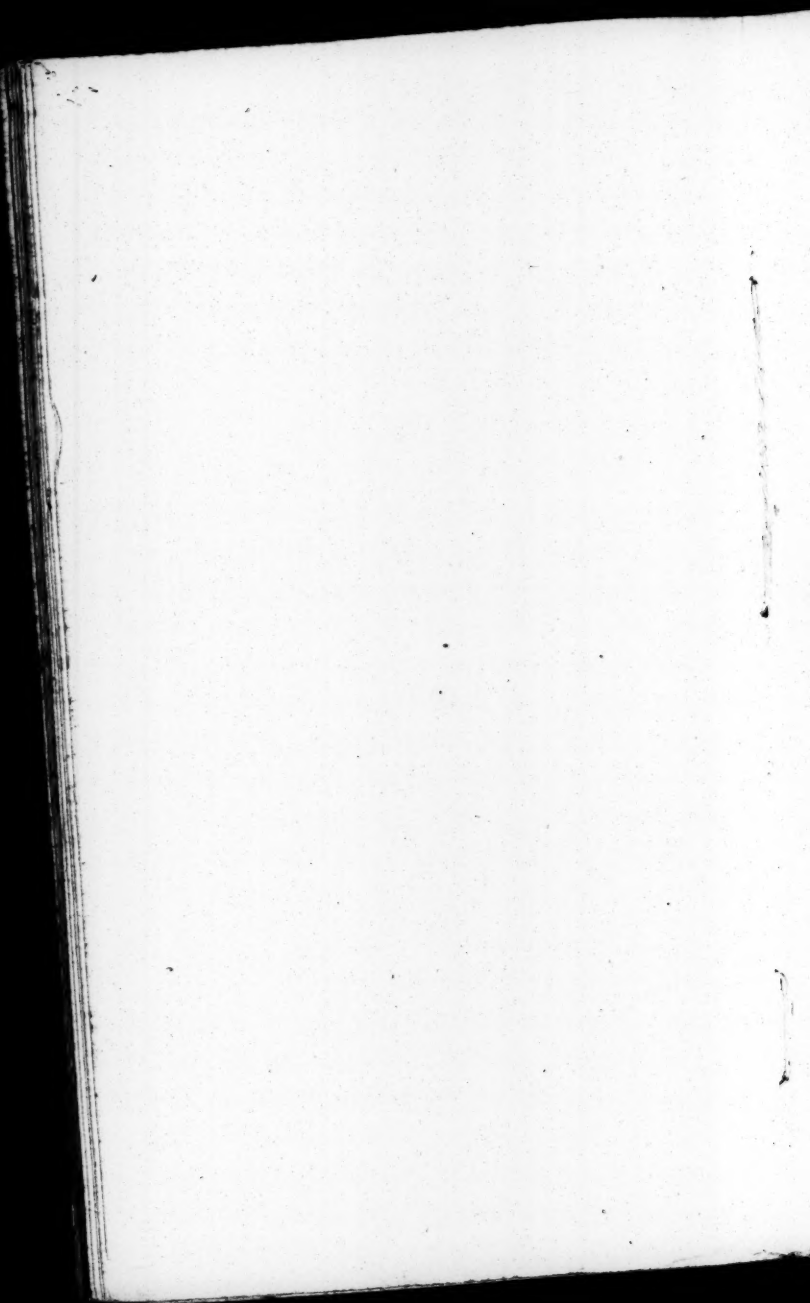
The

q.	1.2.3.4.5.6.7.	q.	1.2.3.4.5.6.7.
1	0010416	6	025
2	0050833	1	0260146
3	0031250	2	0270833
		3	028125
1	0041666	7	0291666.
1	0052083	1	0302083
2	0062500	2	03125
3	0072916	3	0322916
2	0083333	8	0333333
1	009375	1	034375
2	0104166	2	0354166
3	0114583	3	0364583
3	0125	9	0375
1	0135416	1	0385416
2	0145833	2	0395833
3	015625	3	040625
4	0166666	10	0416666
1	0177082	1	0427082
2	01875	2	04375
3	0197916	3	0447916
5	020833	11	0458333
1	0218746	1	046875
2	0229166	2	0479166
3	0239582	3	0489584
6	025	12	05

# The Decimall Table.

251

q.   1.2. 4.5.6.7.		q.   1.2. 4.5.6.7	
12	05	18	075
1	0510416	1	0760146
2	0520833	2	0770833
3	053125	3	078125
13	0541666	19	0791666
1	0552083	1	0802083
2	05625	2	08125
3	0572916	3	0822916
14	0583333	20	0833333
1	059375	1	084375
2	0604166	2	0854166
3	0614583	3	0864583
15	0625	21	0875
1	0635416	1	0885416
2	0645833	2	0895833
3	065625	3	090625
16	0666666	22	0916666
1	0677082	1	0927082
2	06875	2	09375
3	0697916	3	0947916
17	0708333	23	0958333
1	0718746	1	096875
1	0729166	2	0979166
3	0739582	3	0989584
18	075	24	1000000





THE  
SECOND BOOK,  
Containing a Treatise of  
*Decimall Arithmatick.*

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*The declaration of the parts of the  
Decimall Table.*

**F**irst, the Decimall Table in the left Margent contains certaine numbers in great and small letters; first, from one farthing unto one prime, or tenth of a pound, or 2 shillings. Then from one prime for every shilling unto one pound sterling, or 20 shillings.

First, beginning in the left margent, is set down one farthing in the uttermost parallel to the left hand, in the first parallel of the Table, and so continuing from 1 farthing to one prime, or two shillings; and over against every number on the left side in a right line towards the right hand is contained the numbers in decimals, answering unto every farthing, from one farthing to 1 prime, or 2 shillings.

lings ; and in the upper margent in the head of the Table is contained, the true denominations of the said numbers in primes, seconds, thirds, fourths, fifths, sixths, and sevenths, which are small enough to work any question exact to a small fraction of one penny in a sum of great value, as shall appeare by examples following. But here you shall note, that all the numbers in the said Table cannot be exact and perfect.

*To find the value of a Decimall fraction  
in the parts of Coyn.*

Suppose the number given to be 2 seconds, 4 thirds, 5 fourths, and 7 fifths, and you desire to know the true value thereof in coyne ; set down your numbers, as in the example following, and mark your prime line, and then multiply the fraction by 240, the pence in one pound, and the numbers that arise by multiplication over the prime line are the sum of pence, the value of that fraction given, and the remainder on the right hand of the prime line is the fraction of one penny.

*Example.*



Example.

$$\begin{array}{r}
 1.2.3.4.5. \\
 \hline
 02457 \\
 \quad 240 \\
 \hline
 98280 \\
 4 \overline{) 914}
 \end{array}$$

pence.5 | 89680    8968:10000 of a d. ~

Here by multiplication of 2457 fifts by 240 pence, I find 5 pence is gone over the prime line, and there remaines 8968:10000 parts of one penny. Now to know the value of that fraction in farthings, multiply the same by 4, and so many as goe over the prime line, are farthings, the rest is the fraction of a farthing.

Example.

$$\begin{array}{r}
 8968 \\
 4 \overline{) 8968} \\
 \hline
 3 \overline{) 5872}
 \end{array}$$

Numeration in Decimals.

If you have a number to be expressed in Decimals of money, or coyn sterling, learne first by the Decimall Table how to expresse your coyn, from one penny unto one pound sterling,

sterling, or from 1 farthing to 1 pound sterling, for which the Table going before was calculated. If you would know the manner how to calculate the said Table, divide one pound, adding 7 cyphers unto it, by your part you would know how to set forth in Decimals: as if you would know how a farthing will stand in Decimals; divide 1 pound with cyphers by 60, the number of farthings in 1 pound sterling, and the quotient will be the numbers in Decimals, signifying 1 farthing.

*Example.*

$$\begin{array}{r}
 6 \\
 42644 \quad . . . . 7 \\
 10000000 \quad (10416 \\
 9696668 \\
 9999
 \end{array}$$

So that I find, that dividing of 1 pound by 960 farthings, the quotient is 1 third, 0 fourth, 4 fifths, 1 sixth, and 6 sevenths: for if you should have proceeded, adding more cyphers, the quotient would have been alwayes 6, because I see the number remaining to be the same it was at the last, that is 64. And although a farthing cannot be set out exact in Decimals, yet it will serve in Multiplication and Division: for in 10000 yards or ells, it will not dif-

fer.

fer 1 penny, as shall appeare afterwards by examples in their places.

*How to set out a penny in Decimals.*

Divide 1 penny with cyphers by 240, the number of pence in 1 pound sterling, and the quotient will be a penny in Decimals.

2 Example.

$$\begin{array}{r}
 \text{xx} \\
 466 \quad 3.4.5.6.7. \\
 \text{xxooooooo} \quad (41666 \\
 2444 \quad 0 \quad . \\
 22
 \end{array}$$

Here seeing that after I find the first quotient 6, and the remainder 16, as before I cease Division, as needlesse any further, knowing it will produce 6 in the quotient infinitely, and therefore I put as many times 6 in the quotient as I find expedient and needfull, and 1 penny stands thus :

$$\begin{array}{r}
 3.4.5.6.7. \\
 41666
 \end{array}$$

And these and divers other numbers will not be set exact in Decimals, but yet they will serve to great purpose and exactnesse in a multitude of questions, in saving an infinite labour in Reduction, and Multiplication, and Division.

*How*

*How to break a pound into his exact parts.*

Set down 1 pound thus, 10; then take the tenth, which is one prime, or 2 shillings, which I note thus,

1  
1

Then take halfe of that prime or 2 shillings, saying, the 1 halfe of 10 is 5, or the one halfe of one prime is 5 seconds, or 1 shilling; then the one halfe of 5 seconds is 2 seconds and 5 thirds; saying, the 1 halfe of 5 seconds is two seconds and 5 thirds, which is 6 pence: then halfe of 2 seconds, 5 seconds, is one second, 2 thirds, 5 fourths, which doth represent 3 pence in Decimals. Again, one halfe of 1 second, 2 thirds, 5 fourths, is 6 thirds, 2 fourths, 5 fifths, representing 1 penny half-penny, or 3 halfe pence. Again, halfe of that number is 3 125, or 3 thirds, 1 fourth, 2 fifths, 5 sixths; signifying 3 farthings in Decimals, behold the work.

*Example.*

	2 s.	1 s.		6 d.		3 d.
l.	1	2	50	2.3	25	2.3.4
10	10	5	25	25	125	1 2 5
1	5					

	1 d. ob.		or 3 farthings.
125	3.4.5	625	3.4.5.6.
625	6 2 5	3125	3 1 2 5

It

It is also very necessary to understand the proportionall parts of a pound, for by them are many questions speedily wrought in Decimals, as shall appear in the examples of Multiplication and Division afterwards.

*How to expresse the value of any number in Decimals.*

Admit for example this number following, is to be expressed according to the computation of Decimall Arithmatick, viz. 3785|725 thirds: then for the expressing the signification of that number in the known parts of coyn, first, mark out your prime line, to distinguish the whole Numbers from the Fractions with a right down stroke with the pence, and then you shall find the numbers to stand thus 378 5 pound, 7 primes, 2 seconds, and 5 thirds; which search in your Decimall Table, and it doth signifie 14 shillings, 6 pence; so that the whole number is 3794 pound, 14 shillings, 6 pence; and so of all numbers, for you shall understand, that every prime doth signifie in value 2 shillings, every second 2 pence and 2:5 parts of 1 penny, and every 5 thirds 1 penny, and 1:5 of one penny: or else every prime is 1:10 of 1 pound, every second 1:100 part of 1 pound, and every third 1:1000 part of 1 pound, &c. infinitely.

*How*

*How to remove a Decimall number from  
one place to another.*

If you have a Decimall number given : as  
for example, 3 pence, which doth thus stand  
in Decimals, 1 second, 2 thirds, & fourths ;  
then you desire to know how it will stand in  
the place of primes, pounds, or in the place of  
10 *l*, or hundreds, or thousands. Remove it  
one place toward the left hand, and it is 1  
prime, 2 seconds, 5 thirds, or in known parts  
of coyn 2 shillings, 6 pence. Again, remove  
them one place more towards the left hand,  
and it will be 1 pound, 2 primes, 5 seconds,  
or 1 pound, 5 shillings. Again, remove one  
place more, and it is 12 pound, 10 shillings :  
Again, remove it one place more, and all your  
fractions are in whole numbers, and will sig-  
nifie 125 pound, &c.

2 s. 6 d.	1 l. 5 s.	12 l. 10 s.
4		
1 2 5 0	1 2 5 0 0	1 2 5 0 0 0
l.	l.	l.
1 2 5 0 0 0 0	1 2 5 0 0 0 0 0	
	l.	
	1 2 5 0 0 0 0 0 0	

And this Rule is very necessary to be well  
and perfectly understood, for by it any price  
be

be given of a unite in Decimals, you may speedily know what 100, or 1000, or 10000 will cost at that rate, onely by adding of one, two, or more cyphers.

As for example, if one ell cost 6 shillings 3 pence, what will 100 ells cost at that rate? first, set out your price in Decimals thus, 3 primes, 1 second, 2 thirds, 5 fourths, and adding of two cyphers, because 100 hath 2 cyphers, the sum will be  $31\frac{1}{2}500$ : and because your fractions were fourths, cut off 4 figures and cyphers towards the right hand, or mark your prime line, and you shall find that 100 ells will cost 31 pound, 5 shillings at that rate.

*1 Example.*

$$\begin{array}{r|l} l. & 1.2 \dots \\ 31 & 2500 \end{array}$$

If the numbers of the price given will not be exactly set down in Decimals; as for example, at 7 pence 3 farthings a yard, what will 100 yards cost? Set down your price as near as may be, by your Decimall Table, which is 3229 sevenths, adde unto it two cyphers, makes 32291600; and because your fractions are sevenths, cut off 7 figures, and there will be 3 pound, 4 shillings, 7 pence.

*2 Exam-*

2 Example.

$$\begin{array}{r|l} L. & 1.2.3.4.5.6.7 \\ 3 & 2291600 \end{array}$$

And thus much shall suffice for Numeration in Decimals, and I will now proceed unto the second Rule of Arithmatick, viz. Addition in Decimals.

## CHAP. II.

*Addition in Decimals of Coyne.*

**I**F you have divers severall numbers given in Decimals to be added together into one summe, place them in order every one right under his like denomination, or kind, Integers under Integers, Primes under Primes, Seconds under Seconds, &c. Then begin your Addition at the right hand at the least Denomination first, and adde them all according to the Rule of Addition, as if they were all whole numbers, alwayes having a care to mark out your prime line, and the totall of your Addition will shew you the just value of those whole numbers and fractions.

1 Exam-



1 Example.

<u>Integers.</u>	1.2.3.4 5
3576	72500
2400	03250
7206	51257
3278	63756

---

16461 | 90763

Totall is 16461 l. 18 s. 1 d. 3 q.

	li.	s.	d.	q
Here the first number is	3576.	14.	6.	0
The second number is	2400.	00.	7.	3
The third number is	7206.	10.	3.	0
The fourth number is	3278.	12.	9.	0

---

The totall summe is 16461. 18. 1. 3

CHAP. III.

*Subtraction in Decimals.*

**I**F you have two numbers in Decimals, the one to be subtracted from the other, place them above one the other, as in Addition, the greater numbers in the upper part, and the smaller numbers right underneath, and then subtract them as if they were whole numbers, and

and note down the remainders each in their proper places, as in this example.

## 1 Example.

	li.	1.	2.	3.	4.	5.	
Lent.	78569		7	8	5	6	3
Paid.	69587		0	6	2	5	0
<hr/>							
Rest.	8982		7	2	3	1	3
<hr/>							
Prooffe.	78569		7	8	5	6	3

	li.	s.	d.	d.
The prooffe, Lent.	78569.	15.	8	1:2
Paid.	69587.	1.	3	0:0
<hr/>				
	8982.	14.	5	1:2

## 2 Example.

	l.	1.	2.	3.	4.	5.
Lent.	38057		3	2	5	6
Paid.	29730		9	6	2	5
<hr/>						
Rest.	8326		3	6	3	1
<hr/>						
Prooffe.	38057		3	2	5	6

The

*The prooffe in Coyne.*

	<i>l.</i>	<i>s.</i>	<i>d.</i>
<i>Lent.</i>	38057.	6.	6
<i>Paid.</i>	29730.	19.	3
<hr/>			
<i>Rest.</i>	8326.	7.	3
<hr/>			
<i>Prooffe.</i>	38057.	6.	6
<hr/>			

**C H A P. IV.**

*Multiplication in Decimals.*

**I**F you have any two numbers given to be multiplied in Decimals, place your Multiplicand upper-most, and your Multiplier right under-neath, as if the same were absolute whole numbers, and no fractions at all; and when your numbers are placed, mark how many fractions your two numbers doe containe, and note that number down, and multiply according to any of my former instructions in the first book; and when the product is gathered, cut off your prime line, just so many figures and cyphers, as your Multiplicand and Multiplier had fractions between them, and the work is ended.

N

*Example.*

*Example.*

If you will multiply  $758\frac{3}{25}$  thirds, by  $385\frac{7}{1}$  primes, I place first my numbers, and then I find my multiplicand to have 3 fractions, to wit, primes, seconds, and thirds, and I find my multiplier to have one fraction, one-ly primes, which makes 4 fractions, and so many figures I cut off from the Product.

*Example.*

$$\begin{array}{r}
 \phantom{000000}1.2.3 \\
 758\frac{3}{25} \\
 \underline{3857} \\
 5308275 \\
 3791625 \\
 6066600 \\
 \hline
 2274975 \\
 \hline
 292485\frac{9}{5}25
 \end{array}$$

*2 Example.*

If you will multiply 34 pound 5 shillings 3 pence, by 16 pound 6 shillings 6 pence, set them in Decimals,  $34\frac{2}{25}$  fourths, by  $16\frac{3}{25}$  thirds, and multiply them together, and cut from the Product 7 figures to the right hand, and the Product will be 559 pound, 6 shillings, 8 pence *ob.* almost.

*Example.*

# Multiplication.

267

Example.

$$\begin{array}{r}
 1.2.3.4 \\
 \hline
 342625 \\
 16325 \\
 \hline
 1713125 \\
 685250 \\
 1027875 \\
 2055750 \\
 342625 \\
 \hline
 559|3353125
 \end{array}$$

3 Example.

If you will multiply 758 Integers by 3 primes, 7 seconds, 5 thirds, which is by 7 shillings, 6 pence; place them as in the last example, and from the Product cut off the 3 figures for the 3 fractions, and the totall is 284 pound, 5 shillings, the sum that 758 ells will cost, at 7 shillings, 6 pence an ell., &c.

Example.

$$\begin{array}{r}
 758 \\
 375 \\
 \hline
 3790 \\
 5306 \\
 2274 \\
 \hline
 284|250 \\
 N 2
 \end{array}$$

Ia

If you will multiply Fractions by Fractions in Decimals; as to multiply 5 primes, 2 seconds, 6 thirds, 3 fourths, by 7 primes, 2 seconds, 5 thirds; set them as before, and cut off 7 figures.

## 4 Example.

$$\begin{array}{r}
 1.2.3.4. \\
 \hline
 5\ 2\ 6\ 3 \\
 7\ 2\ 5 \\
 \hline
 26\ 3\ 1\ 5 \\
 10\ 5\ 2\ 6 \\
 3\ 6\ 8\ 4\ 1 \\
 \hline
 138\ 15\ 6\ 7\ 5
 \end{array}$$

makes 7 s. 7 d. ob.

If you will multiply in Decimals by 10, or by 100, or by 1000, &c. set down your numbers, and mark how many Fractions there be in your Multiplicand, and then adde so many cyphers as your Multiplier hath to the right hand, and cut off your prime line, and the work is ended; as in this example.

## Example.

$$\begin{array}{r}
 1.2.3.4.5.6. \\
 7\ 8\ 5\ 6\ 0\ 2\ 5 \\
 100 \\
 \hline
 785\ 602\ 500
 \end{array}$$

785 l. 12 s. ob.

How

*How to change any Fraction given into Decimals.*

Admit there be a Quotient of a Division, which is 358 pound, 126:255 of one pound, which Fraction you would turne into Decimals; adde a Cypher to your Numerator of your Fraction, makes 1260: but because your number will not be evenly divided by your Denominator 255, therefore adde more Cyphers, and then divide the number by 255, makes 49411 fifts in Decimals to be joyned with the whole numbers 358'49411 fifts, and are now fit for Multiplication and Division in Decimals.

*5 Example.*

$$\begin{array}{r}
 1034 \\
 240508 \quad 1.2.3.4.5 \\
 12600000 \quad (49411 \\
 2555555 \\
 25555 \\
 222
 \end{array}$$

Admit there be a Fraction to be set out in Decimals thus, it is required to know what 156 yards of cloth will cost at 196:784 of a pound for one yard? Adde to 156, 2 or more cyphers, and divide by the Denominator 784, makes 25 seconds, by which multiply 156 yards, makes 39 pound.

N 3

6 Exam-

## 6 Example.

$  \begin{array}{r}  156 \\  25 \\  \hline  780 \\  312 \\  \hline  39 00  \end{array}  $	$  \begin{array}{r}  00 \\  3520 \\  196000 \\  7844 \\  78  \end{array}  $	$  \begin{array}{r}  '12 \\  (25  \end{array}  $
---	---	--

## 7 Example.

For the prooffe of this work, multiply 156 by 196, makes 30576; which divided by 784, makes 39 pound, as before.

$  \begin{array}{r}  196 \\  156 \\  \hline  1176 \\  980 \\  196 \\  \hline  30576  \end{array}  $	$  \begin{array}{r}  00 \\  8750 \\  30576 \\  7844 \\  78  \end{array}  $	$  \begin{array}{r}  1.2 \\  (39 \text{ the proof.}  \end{array}  $
---	--	---



CHAP. V.

*Division in Decimals.*

**I**F you will divide any numbers in Decimals, either whole numbers by Fractions, or fractions by whole numbers, or whole numbers and fractions by whole numbers and fractions; set them down according to the Rules in Decimals in the operations before-going. As for example, a certain Merchant bought as much cloth as cost him 284 pound, 5 shillings, at 7 shillings 6 pence an ell, the question is, how many ells he had for his money? To do this, or any other the like question, divide your summe of money 284 pound, 5 shillings, by 7 shillings 6 pence, and the Quotient will shew you what number of ells, and parts of an ell (if any be) were bought for that money.

*Example.*

$$\begin{array}{r}
 0 \\
 320 \\
 21750 \\
 284250 \\
 37555 \\
 377 \\
 3
 \end{array}
 \begin{array}{l}
 \text{Ells.} \\
 (758
 \end{array}$$

N 4

How

*How to divide the smaller number  
by the greater.*

If you will divide 34 pound, 6 shillings, amongst 36 men; place your numbers, adding 3, or 4, or 5 cyphers; and then divide by 36, makes 95 277 fifts; or in coyne 19 shillings, 0 pence, 06. for every mans portion.

*2 Example.*

1232	
19088	1.2.3.4.5
3420000	(95 277, or 19 s. 06. 1:4
20000	
300000	
333	

What is the quotient of 724 pound, divided by 3:4 of a unit, or 15 shillings? Answer: divide 724 by 75 seconds, makes 965 1:3; for triall whereof, multiply 965 1:3 by 15 shillings, or 75 seconds, makes 724, as in the example.

*2 Exam-*

2 Example.

$$\begin{array}{r}
 422 \\
 49085 \\
 724000 \\
 75555 \\
 777
 \end{array}
 \begin{array}{r}
 1.2.3. \\
 (965|3\ 3\ 3 \\
 \text{or } 965\ 1:3 \\
 75 \\
 \hline
 4825 \\
 67555 \\
 2 \\
 \hline
 \end{array}$$

The prooffe.  $724'00$

This last Question is in effect no other but as the former: for if I shall say, a Merchant buyes Broad-cloath, costs him 724 pound at 15 shillings, or 3:4 of a pound one yard, the Question is, what number he had for his money? and by division I find he had 965 yards, and 1 third part of a yard, as is proved in the example; and so dividing 724 by 3:4, the quotient is 965, 1:3.

3 Example.

If you will divide the Product of the second example in multiplication, which was 559|3353125 sevenths by 16325 for the prooffe of that work, which ought to bring out the Multiplicand 34|2625; or rather if

N 5;

you

you will divide 559 pound, 6 shillings, 8 pence, *ob.* almost, by 16 pound, 6 shillings, 6 pence, the quotient will be 34 pound, 5 shillings, 3 pence.

*Example.*

x	048		
4	2208		
Divisor 69	58086	L.	1.3.3.4
16325	559	3353125	(34   2625
	000	0000000	
489	7500005		
65	305552		
3	26966		
	9721		
	38		

*The* 559 | 3353125 *prooffe.*

*How to find the Prime line in any Division Decimall, or to find the true denomination of the Quotient.*

In any Division decimall, alwayes marke out your prime line in your Dividend with a streight downe line with the pen, then set your Decimall fractions in primes, seconds, thirds, fourths, &c. beyond the line; also doe the like in your divisor, and then marke how often you may remove your divisor, that the whole

whole numbers of your Divisor may stand under the whole numbers of your dividend, and so many figures shall your quotient have in whole numbers, the rest are to be marked with prickles in the quotient for primes, seconds, thirds, &c.

If you will divide 938 61375 fiftes by 34 pound 35 seconds, then place them with prickles, as in the example following. I find having placed my divisor underneath my dividend, that I may remove my divisor twice under the whole numbers of my Dividend, and therefore I conclude, the first 2 numbers of my quotient will bee whole numbers, which I marke from the rest of the numbers in the quotient with a line, and then dividing according to the former instruction, you shall find the quotient will be 17 pound, 3 primes, 2 seconds, and 5 thirds.

*Example.*

17					
25	1168	li.	1.2.3	l.	s. d.
938	61375	(27	325	or 27.	6. 6.
34	35555				
34	3333				
34	444				
33					

2 *Example.*

## 2 Example.

If you would divide 1554 pound, 2 primes, 5 seconds, or 5 shillings, by 45 pound; place them as in the Example following, and you shall find that there will be in the quotient 3 figures in whole numbers, and the rest will be primes and seconds, so that dividing of 1554 pound, 5 shillings, by 45 pound, the quotient is 345 pound, 13 shillings.

## Example.

$$\begin{array}{r}
 22 \\
 2029 \\
 1554 \overline{) 25} \quad (345 \mid 65 \text{ or } 345 \mid 13 \\
 455555 \\
 4444
 \end{array}$$

## 3 Example.

If the greatest number of your Divisor be primes, then the figures of your whole numbers in the Quotient will be once greater in value, then the times you can remove your Divisor, as if you would divide 241 pound, 5 primes, by 7 primes; then whereas you can remove your Divisor but two times under the whole numbers 241, yet you shall have 3 numbers in the Quotient in whole numbers, because your first figure of your divisor is primes;

*Division.*

277

primes ; so that in dividing 241 *li.* 5 primes<sup>s</sup> by 7 primes, I find the quotient will bee 345 pound, or integers ; and so many yards, at 14 shillings a yard, which is 7 primes, will 241 pound 10 shillings buy.

*Example.*

$$\begin{array}{r}
 33 \quad \text{yards or pounds.} \\
 241 \overline{) 875} \quad (345 \\
 \underline{777}
 \end{array}$$

4. *Example.*

If you will divide 16 pound, 875 thirds, which is 16 *li.* 17 *s.* 6 *d.* by 375 thirds, which is 7 *s.* 6 *d.* or which is all one, imagine there is as much cloth of 7 *s.* 6 *d.* a yard, as cost 16 pound, 17 shillings, 6 pence ; the question is, how many yards was bought for that money? placing your numbers in the example following, I find 45 yards is the answer to the question.

*Example.*

$$\begin{array}{r}
 x \quad \text{yards.} \\
 16 \overline{) 875} \quad (45 \\
 \underline{375} \\
 27
 \end{array}$$

5 *Example.*

## 5 Example.

If you will divide whole numbers and fractions by whole numbers, place the whole numbers and fractions uppermost, and mark out your prime line, and then set your Divisor under-neath, and the lowest figure in value of you Divisor, will shew you what is the denomination of the first figure of your Quotient. As if you will divide 13 *l.* 95 seconds by 45 ; or which is all one, if you shall say ; if 45 pieces of figs cost me 16 *l.* 19 s. what did one piece cost? Divide 13 | 95 seconds by 45, makes 31 seconds, or 6 s. 2 d. 2:5 of a penny for the price of one piece. And in this sort the price of any number of yards, ells, or pounds, being given, in dividing it by the number of yards, ells, or pounds, the Quotient will be the price of one ; and by this Rule you save a labour of Reduction, alwaies dividing the price by the number given, the greater by the lesser, or the lesser by the greater.

## Example.

4	1.	2	s.	d.	d.
23   65	(3	2	or 6	2	2/5
455					
4					

6. Ex.



## 6 Example.

If 456 elles of cloth cost 575 pound, 7 primes, what will one ell cost? divide 575 pound, 7 primes by 456 elles, makes 1 pound 2625 fourths, or in Coyne, 1 pound, 5 shillings, 3 pence for the price of one ell.

$$\begin{array}{r}
 x \\
 2822 \\
 \hline
 129548 \quad \text{L. 1. 2. 3. 4.} \quad \text{L.} \quad \text{s.} \quad \text{d.} \\
 575 \overline{) 7000} \quad (1 \overline{) 2625} \quad \text{or} \quad 1. \quad 5. \quad 3. \\
 4566666 \\
 \hline
 45558 \\
 \hline
 444
 \end{array}$$

*Reduction in Decimals.*

If you will reduce 75 pound, 12 shillings, 9 pence into Decimals, enter your Decimall Table, and for 12 shillings find 6 primes; then looke for 9 pence, and you shall find 375 fourths; so the totall is 75 pound, 6375 fourths, and are now fit and apt for any Decimall operation.

If you multiply or divide 84 pound, 13 shillings, 6 pence, by 17 pound, 3 shillings, reduce them into Decimals by the Table, makes for 84 pound, 13 shillings, 6 pence, 84:675, and for 17 pound, 3 shillings 17:15, and

and are now fit to bee multiplied or divided one by the other.

If you will reduce 189:756 parts of 1 pound into Decimals: divide 189, adding 3 Cyphers to it, by 756, makes 25 seconds for that Fraction in Decimals: and now for example, If 158 ells of Cloth and 189:756 parts of an elle cost 70 *l.* 2 *s.* 6 *d.* what will 640 elles cost at that rate? Now according to vulgar Arithmatick, either I must reduce 158 ells 189:756 parts of an elle into 756 parts, or otherwise I must reduce the Fraction into his least termes, makes 1:4; then I multiply or reduce 158 elles into fourths, makes 633 fourths for the first number in the Golden Rule. Secondly, reduce 79 pound, 2 shillings, 6 *d.* into pence, makes 18990 pence for the second number; then put 640 elles into fourths, makes 2560 fourths; then multiply 18990 by 2560, makes 48614400; which divide by 633, makes 320 pound.

*Example.*

$$\begin{array}{r}
 50 \\
 4306 \quad 4 \quad \text{li.} \\
 48614400 \quad (76800 \quad (320 \\
 6333333 \quad 24440 \\
 63333 \quad 22 \\
 666
 \end{array}$$

*The*

*The same Example wrought by Decimals.*

If 158 ells 1:4 ell cost 79 *li.* 2 *s.* 6 *d.* what will 640 ells cost at that rate? Place them in Decimals thus: If 158|25 seconds cost 79|125 thirds, what 640 elles? Multiply 79|125 thirds by 640, makes 50640000; which divide by 15825, makes 320 *li.* the quotient.

*Example.*

1.2.3.			
79   1.2 5			
640	3195		l.
3165   000	506400.00		(320
47475   0	1582555		
50640   000	15822		
	158		

*Or otherwaies.*

Divide 15825 by 79125, adding one Cypher, makes 2 primes for the quotient; wherefore I conclude, that one halfe of 640 pound, which is 320 *l.* is the answer to the question demanded. Also divide 79125 by 15825, the quotient is 5 primes; by which multiply 640 pound, makes 320 pound for the answer to the question as before.

If a Philips Dollar be worth 4 shillings 8 pence,

pence, what are 465342 Dollars worth in sterling money? Answer; multiply 465342 by 2 primes, which is 4 shillings, and take the sixth part of that Product, and adde unto it, makes 1085798 primes for the answer,

Or otherwise, multiply by 2 primes, and 1:3 of a prime, because 8 pence is 1:3 of a prime, and both wayes will produce the same answer.

*Example.*

465342		465342	
2	1:6	2	1:3
<hr/>			
9	0684	930684	
15511	14	15511	14
<hr/>			
108579	8	108579	8

If a common Dollar be worth 4 shillings, and a Princes Dollar be worth 4 shillings, 6 pence, how many Princes Dollars will pay for 7584 common Dollars? Multiply 7584 by 4 s. and divide by 4 s. 6 d. makes 6741 Dollars and 7 seconds, and 5 thirds will remaine, which is 18 pence; so that I conclude, 6741 Princes Dollars at 4 shillings, 6 pence a piece will pay for 7584 common Dollars, and there will remaine 18 pence.

*Example*

## Example.

7584  
2

---

1516,8

168378 Dollars 2.3  
1516800 (6741 75  
225558  
2222  
22

In 654 pound, how many Dollars of 3 shillings a piece? Adde two Cyphers to 654, makes 65400, because 3 shillings hath 2 fractions in Decimals, viz. primes and seconds, which is one prime and 5 seconds, by which divide 65400, makes 4360 Dollars at 3 shillings a piece.

## Example.

9 1. Dollars.  
65400 (4360  
15558  
111

In 756 pound how many Dollars of 3 shillings, 9 pence a piece? Adde 4 Cyphers to 756, makes 7560000; which divide by 1875, which is 3 shillings 9 d. in Decimals, makes 4032 Dollars. Behold the Example following.

## Example.

Example.

$$\begin{array}{r}
 375 \quad \text{Dollars.} \\
 7500000 \quad (4032 \\
 \times 878888 \\
 \times 777 \\
 \times 88 \\
 \times
 \end{array}$$

If I doe sell 346 yards of Velvet for 298 pound, 8 shillings, 6 pence, how doe I sell one yard? Answer: divide the price by the quantity of yards in decimals, makes 1625 fourths, or in Coyne 17 shillings, 3 pence for the price of one yard.

Example.

$$\begin{array}{r}
 \times \\
 87 \\
 21663 \quad 1.2.3.4 \\
 298 | 4250 \quad (8625 \\
 346666 \\
 3444 \\
 33
 \end{array}$$

Makes 17 s. 3 d. a yard.

A Merchant would buy severall sorts of Spices of several prices, to wit, of 3 shillings a pound, of 2 shillings, of 2 shillings 3 pence, of 1 shilling 7 pence, and of 2 shillings, 2 pence

pence a pound, and would have of each a like quantity; for 324 pound, the Question is, how many pound he must have of each? First, adde the prices into one summe, makes 11 s. by which divide 324 l. makes 589, 1:11 of a pound, and so many pound must hee have of each sort.

A Goldsmith sent his servant to the Tower of London, to fetch him 415 l. 18 s. 9 d. in pieces of 6 d. of 4 d. of 3 d. of 2 d. of 1 d. and of 1 halfe-penny, and bad him bring of each sort a like quantity: First, adde all your Coyne, makes 16 d. halfe-penny, which in Decimals is 6875 fiftys; by which divide 415 | 9375 fourths, makes 6050 pieces of each sort.

*Example.*

$$\begin{array}{r}
 24 \\
 41593750 \quad (6050 \text{ pieces of each sort.} \\
 6875555 \\
 68777 \\
 688 \\
 6
 \end{array}$$

*Rules of Practice in Decimals.*

Set your price given in the Decimall Table of an Unite, be it yard, ell, piece, or pound, and by the price given, multiply the number of

of yards, ells, pieces, or pounds, and the Product will be the summe that you seeke, if you doe but marke out the Prime line, as shall appeare by examples following.

## 1 Example.

If one pound weight of small Ginger cost 7 pence halfe-penny, what will 112 pound weight cost? Find for 7 pence halfe-penny 3125 fifths, which multiply by 112 pound, makes 350000; from which cut off five figures to the right hand by the Prime line, and the summe is 3 pound, 5 Primes, or 3 pound, 10 shillings, because your multiplicand hath 5 Fractions.

## Example.

$$\begin{array}{r}
 2.3.4.5 \\
 \hline
 3125 \\
 112 \\
 \hline
 6250 \\
 3125 \\
 3125 \\
 \hline
 350000
 \end{array}$$

$$\begin{array}{r}
 1.2.3.4 \\
 171|2500
 \end{array}$$

makes 171  $\frac{4}{5}$ .

How



*How to find the price of any Unite in any place,  
of 10, or 100, or 1000; the price of  
one being given.*

If the price of a unite be given at any rate, and from thence you desire to know, what 10, or 100, or 1000, or 10000 will cost at that rate: or otherwise, if you desire to know, if you doe gaine any rate desired by the pound, and would know at what rate it will be in the 100 pound, or upon exchange from place to place, the exchange of 1 pound being given, you desire to know, what 100 *l.* will amount unto? Place your rate or gaines given, in Decimals by help of the table, and then adding of one, two, three, or more Cyphers, cutting off your prime line, you shall know your desire, marking the denominations of your fractions, if the least to the left hand be primes, seconds, thirds, fourths, fifths, cutting off your prime line so many figures from the right hand.

*2 Example.*

If 1 *l.* sterling be 1 *l.* 14 *s.* 3. *d.* Flemish, what is a hundred *l.* sterling worth? Place 1 *l.* 14 *s.* 3 pence in Decimals, makes 17125 fourths: then because 100 pound hath two Cyphers, makes 1712500: then cutting off  
4 figures

4 figures to the right hand, you shall find 171 pound, 5 shillings for 100 *l.* sterling, to make as appeareth before.

If one ell of Cambrick cost 7 *s.* 6 *d.* 3 farthings, what will 100 elles cost at that rate? Place 7 shillings, 6 pence, 3 farthings in Decimals, makes 378125 sixths, and adding two Cyphers for 100, makes 37812500 : from which cut off 6 figures to the right hand, makes 37 *l.* 16 *s.* 3 *d.* for the summe that 100 ells will cost.

## 3 Example.

1.2.3.4.5.6

37|812500

Makes 37 *l.* 16. *s.* 3 *d.*

## 4 Example.

1112,5000

If one pound or piece cost 1 pound, 2 shillings, 3 pence, what will 1000 pieces cost? Set 1 *l.* 2 *s.* 3 *d.* in Decimals, makes 1|1125 fourths : to the which adde Cyphers, because 1000 hath 3 Cyphers, and from the totall cut off 4 figures, makes 1112 pound, 10 shillings, as in the fourth example above.

If one ell of Holland cost 3 *s.* 3 *d.* what will 343 ells cost? Multiply 343 by 3 *s.* 3 *d.* in Decimals, which is 1625 fourths, makes 55 pound, 14 shillings, 9 pence.

## 5 Example.

## 5 Example.

## 6. Example.

$$\begin{array}{r} 1.2.3.4 \\ | 1625 \\ 343 \end{array}$$

$$\begin{array}{r} 1.2.3 \\ | 972 \\ 775 \end{array}$$

$$\begin{array}{r} 6 | 4575 \\ 500 \\ 48 | 75 \end{array}$$

$$\begin{array}{r} 4 | 860 \\ 68 | 04 \\ 680 | 4 \end{array}$$

$$55 | 7375$$

$$753 | 300$$

If one yard of Velvet cost 15 shillings 6. d. what will 972 yards cost? Find for 15 s. 75 seconds; then for 6 d. find 25 thirds, totall is 775 thirds; by which multiply 972, makes 753 l. 6 s. as above in the sixth example.

If one yard of Velvet cost 17 s. 7 d. 3 q. what will 857 yards cost? First, find 17 s. to be 85 seconds, then 7 d. 3 q. makes 322916, totall is 8822916; which multiply by 857, makes 756 l. 2 s. 5 d. 3 q.

## 7 Example.

## 8 Example.

$$\begin{array}{r} 1.2.3.4.5.6.7 \\ | 8822916 \\ 857 \end{array}$$

$$\begin{array}{r} 1.2.3.4 \\ | 1375 \\ 758 \end{array}$$

$$6 | 1760412$$

$$1 | 9000$$

$$44 | 114580$$

$$11 | 875$$

$$705 | 83328$$

$$166 | 25$$

$$756 | 1232012$$

$$180 | 0250$$

If

If one Dollar be worth 4 s. 9 d. what are 758 Dollars worth in sterling money? Multiply 4 s. 9 d. which is 2375 fourths by 758, makes 180 pound, 6 pence, as in the eight example above.

*The price of any number of yards, elles, pieces, or pounds given to find the price of a unite.*

If the price of any number of yards, elles, pieces, or pounds be given, set them down in Decimals, adding, 1, 2, or more Cyphers, if need require, and divide that sum, or price by the number of the yards, eils, pounds, or pieces, and the quotient is the price of a unite in whole numbers, primes, seconds, and thirds, without reduction, as shal appeare by examples following: and in this manner you may know what sum of money was lent, if the principall and interest be given at any rate in the hundred; or you may know if the rate of 1 li, exchange be given for any place, you may know the value of 100 of that Coyne in that money given; and by this rule is to be abbreviated almost all operations of Arithmatick, by finding the value of a Unite in any place desired.

If 542 ellis of cloth cost 22 l. 4 d. 06, what cost 1 ell at that rate? Divide 22 01875 fifths by 542, makes 40615 sixths, or in Coyne 9 d. 3 farthings for the price one ell cost.

■ *Example.*

44  
acc  
duc  
tle,

## 1 Example.

$$\begin{array}{r}
 127 \\
 33388 \quad 2.3.4.5.6 \\
 22018750 \quad (40625 \\
 5422222 \\
 54444 \\
 555
 \end{array}$$

If 345 *l.* gaine 76 *l.* 12 *s.* what doth 1 *li* gaine? Divide 76600000 by 345 *li.* makes 222028 fixth, or in Coyue, makes 4 *s.* 5 *d.ob.* almost, that 1 *li.* doth gaine, as in the Example following.

## 2 Example.

$$\begin{array}{r}
 412 \\
 7 \quad 768 \\
 761018 \quad 1.2.3.4.5.6 \\
 76600000 \quad (222028 \\
 34555555 \\
 344444 \\
 3338
 \end{array}$$

If 756 *li.* 3 quarters, 24 pound of Sugar cost 4421 *l.* 12 *s.* what did 1 pound weight cost, accounting 112 pound to the hundred? Reduce 756 *l.* 3 quarters, 24 *l.* into pounds futtle, accounting 112 pound to the hundred,

O 3

makes

makes 84780 l; then divide 4421 l. 12 s. by 84780; makes 5215 fifts, or 12 pence, halfe-penny one pound.

## 3 Example.

$$\begin{array}{r}
 432 \\
 13565 \\
 \times 82402 \\
 \hline
 442160000 \\
 84788880 \\
 84777 \\
 844 \\
 8
 \end{array}
 \begin{array}{r}
 2345 \\
 (5215
 \end{array}$$

If I sell 1000 pieces of Cambricke for 700 li, how doe I sell one piece? Divide 1000 by 700, makes 1 pound, 42857 fifts 1 pound 8 shillings, 6 pence, 3 farthings, as in the example following.

## Example.

$$\begin{array}{r}
 32645 \\
 1000000000 \\
 77777700
 \end{array}
 \begin{array}{r}
 l. 1. 2. 3. 4. 5 \\
 (1. | 42857
 \end{array}$$

If one pound sterling be 1 pound, 14 shillings, 3 pence Flemish, what is 1 pound Flemish worth: Divide 1 pound with Cyphers by 17125, makes 11 shillings, 8 pence, 1 farthing almost.

## 5 Example

## 5 Example.

$$\begin{array}{r}
 \text{r} \\
 65\text{r} \\
 1437525 \quad 1.2.3.4 \\
 100000000 \quad (5839 \\
 17125555 \\
 171222 \\
 171\text{r} \\
 \text{r}
 \end{array}$$

If 1 *l.* sterling be 1 *l.* 14 *s.* 7 *d.* ob. Flemish,  
 what is 100 *l.* Flemish worth in sterling mo-  
 ney? Divide 100 by 173125 fifts, which  
 is 1 *l.* 14 *s.* 7 *d.* ob. in Decimals, makes 57 *l.*  
 15 *s.* 3 *d.*

## 6 Example.

$$\begin{array}{r}
 4\text{r} \\
 1079 \\
 131987 \\
 13438558 \quad 1.1.2.3 \\
 1000000000 \quad (57|762 \\
 173355555 \\
 1731112 \\
 17333 \\
 177 \\
 \text{r}
 \end{array}$$

*The Golden Rule in Decimals.*

If the number given be pounds, shillings,  
 O 3 and

and pence, set them out in Decimals, and also your number of yards, ells, pieces, pounds, or any other numbers, set them out also in Decimals, and then without reduction, multiply the third number by the second, and divide by the first, according to the instructions of Multiplication and Division in the former part of this booke, and the quotient will be the third number sought.

*1 Example.*

If 34 ells of Canvas cost 1 pound 4 s. what will 756 ells cost at that rate? Multiply 756 by 1 pound, 2 primes, makes 907 1/2 primes; which divided by 34, adding Cyphers, makes 26 6823 fourths, or in Coyne, 26 pound, 13 shillings, 8 pence.

*Example.*

$  \begin{array}{r}  756 \\  12 \overline{) 1512} \\  \underline{1512} \\  0  \end{array}  $	$  \begin{array}{r}  2 \times 1.1.2.3.4 \\  223882 \quad (26 \mid 6823 \\  1072000 \\  3444444 \\  23333  \end{array}  $
--	--

If 112 pound of Indico cost 34 pound, 17 shillings, what cost 789 pound subtrill, accounting 100 pound to the hundred? Multiply



# The Goulden Rule.

295

ply 34'85 seconds by 789, makes 27496 li.  
65 seconds; which divided by 112 pound,  
makes 245 pound, 5058 fourths, or 10 shil-  
lings 1 penny farthing.

## Example.

1.2	
485	
789	
<hr/>	
31365	69   5058 69
27880	77496 6500 (245   5058
24395	11222 2222
<hr/>	11222 2222
27496.65	112   11

If 981 ells of Cloath cost 94 pound, 13 s.  
6 pence, what cost 2943 ells at that rate? Di-  
vide the third number by the first, and by the  
quotient multiply the second, and the product  
will be the answer sought.

2943 (3	1.2.3
981	94   675
	<hr/>
	284   025

Makes 284 l. 6 d.

If 112 pound of Sugar cost 5 pound 3 shil-  
lings, 9 pence, how many pounds will 124  
O 4 pound

pound buy at that rate? Divide 5|1875 fourths by 112 pound, to find the price of 1 pound, makes 46316 sixths, or in Coyne 11 *d.* 1: 0 of a penny almost for the price that one pound cost. Secondly, divide 124 *li.* by the price of one pound, *viz.* by 46316 sixths, makes 2677|3 primes, and so many pound he shall have for 124 pound.

If one yard Broad-Cloath cost 16 *s.* 9 *d.* how many yards shall 56 pound buy at that rate? Divide 56 *l.* by 16 *s.* 9 *d.* the price of one yard, makes 66 yards, 9:10 almost.

*Example.*

$$\begin{array}{r}
 5 \\
 250 \\
 575000 \quad \text{yards.} \quad \text{yard.} \\
 56000000. \quad (66 \quad 86:100 \\
 8375558 \\
 83777 \\
 823 \\
 8
 \end{array}$$

If 7 yards 1:2 of cloth cost 9 *s.* what will 8 yards 1:3 of a yard cost? Multiply 9 shillings, or 45 seconds by 8 1:3, makes 375: which divide by 7 yards 1:2, or by 75 primes, makes 5 primes, or 10 shillings.

*Example.*

*Example,*

$$\begin{array}{r}
 1 \\
 4 \overline{) 5} \\
 \underline{8} \quad 1:3 \\
 360 \\
 15 \\
 \hline
 375
 \end{array}
 \qquad
 \begin{array}{r}
 1 \\
 3750 \text{ (5,} \\
 75
 \end{array}
 \qquad
 \begin{array}{r}
 3 \\
 \text{or } 10
 \end{array}$$

If 5 yards 1:2 cost 4 s. 8 d. 1:4 of a penny;  
 or 56, 1:4, what will 30 yards cost at that  
 rate? Set your 56 d. 1:4 in Decimals, makes  
 56/25 seconds, which multiply by 30, makes  
 1687/50 seconds; which divided by 5 yards  
 one halfe, or 5/5 primes, makes 306 pence  
 8:10 of one penny for the price of 30 yards,  
 as in the example following.

*Example.*

$$\begin{array}{r}
 56 \overline{) 25} \\
 30 \\
 \hline
 1687 \overline{) 50}
 \end{array}
 \qquad
 \begin{array}{r}
 134 \overline{) 1} \\
 1687 \overline{) 50} \\
 5555 \\
 555
 \end{array}
 \qquad
 \begin{array}{r}
 d. \quad l. \\
 (306 \quad 8.
 \end{array}$$

or 25 s. 6 d. 4:5 of a d.

If 34 elles 3:4 of Holland cost 3 pound,  
 6 shillings, 1 penny, halfe-penny, what will  
 756 elles 1:2 cost at that rate? Multiply 3  
 pound, 6 shillings, one penny halfe-penny,  
 which

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*Decimall Arithmatick,*

which is  $3|30625$  fifths by  $75615$  primes,  
makes  $2501|178125$ , which divided by  $34$   
ells,  $3:1$ , or by  $34|75$ , makes  $71'9763$  thirds,  
or  $71$  pound,  $19$  shillings,  $6$  pence.

*Example.*

$$\begin{array}{r}
 1.2.3.4 \\
 3|2625 \\
 \hline
 7565 \\
 \hline
 168125 \\
 201750 \\
 \hline
 168125 \\
 \hline
 235375 \\
 \hline
 254373125 \\
 \hline
 5|93 \\
 134|28 \quad 1. \quad 1.2.3 \\
 2543|72123 \quad (73|2000 \\
 34755558 \\
 347772 \\
 3444 \\
 32
 \end{array}$$

If  $246$  pound,  $10$  shillings, gaine  $32$  pound,  
 $8$  shillings, what will  $75$  pound gaine at that  
rate? First multiply  $32|4$  primes by  $75$  makes  
 $2030|0$  prime; which divided by  $3463$   
primes, makes  $7|0129$  fourths, or  $7$  pound,  $3$   
pence for the answer.

*Example.*

## Example.

324	3	
75	1842	
1620	45350	l. 1.2.3.4
2268	243000000	(7) 0129
2430 0	34655555	
	346666	
	3444	
	33	

*The same Question wrought a second way.*

Divide 32|4 primes, by 346|5 primes, adding 5 Cyphers, and the quotient will be 935 fourths; which multiply by 75, makes 7 l. 0125 fourths, which doth not want one farthing of the former summe.

*The same Question wrought another way.*

Divide 75 pound, adding 5 Cyphers by 346 pound, 5 primes, and the quotient will be 21645 fifths? which multiply by 32|4 primes, makes 7012980; from which abate 6 figures to the right hand, because of your 6 fractions and the remainder will be 7 l. 0126 fourths, &c. as before. And in this manner you may worke any question in the rule of Three, 3 severall wayes, and proove the works one by the other.

If

If 12 shillings doe buy 74 pound of Ginger, how much shall I have for 100 pound? Divide 7400, which is the product of 74 by 100, by 12 shillings, or 6 primes, and the quotient will be 1233 3 pound, 1:3, and so much Ginger shal I have for 100 pound at that rate; or otherwise divide 100 pound by 6 primes, makes 166, 2:3, which multiply by 74, makes 12333 pound, 1:3, as before,

*Briefe Rules how to abbreviate your worke in the Golden Rule, by marking the proportions between the numbers given.*

When as any Question is propounded in the Golden Rule, marke what proportion is between the first and second numbers, or between the first and third numbers, or between the third and second; for if you espie them in any proportion, the Question demanded is very speedily answered, upon the first sight; or yet if you see them not exactly to be even proportionals, yet you may subtract the first from the third, once, twice, or three times, or more, and so often take the middle number towards the answer to the Question, and then you neede not to multiply by your whole third number, as you shall see by Examples following.

1 Example.

1 Example.

If 34 ells cost 2 pound, 4 shillings, 1 penny, what will 340 ells cost? Here comparing the first and third numbers, one with another, I find the third doth containe the first 10 times, wherefore I multiply 2 pound, 4 shillings, 1 penny, by 10, and the Totall is 22 pound, 10 pence, the Answer.

2 Example.

If 82 ells of Cloth cost 4 pound, 2 shillings, what will 324 ells cost at that rate? Here I find 4 pound 2 shillings in Decimals to be one halfe of 82, but it standeth one roome lesse in value then 82 doth, so I conclude, that halfe of 324 one room lesse is 16 pound, 2 primes, or 4 shillings, the Answer.

3 Example.

If 345 ells of Holland cost 34 pound, 10 shillings, what will 789 ells cost at that rate? Set down 34 pound, 10 shillings in Decimals, makes 34 pound, 5 primes, which is the first number placed but 1 room lower; therefore I say, If 345 ells cost 34 pound, 5 primes one roome more to the right hand, then the third number also will cost 78 pound, 9 primes one roome more to the right hand, which is 78 pound, 18 shillings.

Ex.

## 4 Example.

If 12 ells of Cloth cost 2 shillings, 4 pence, 4:5 of one penny, what will 356 ells cost? place 2 shillings, 4 pence, 4:5 in Decimals, makes 1 prime, 2 seconds, or 12 seconds, which is the same number, but it stands two rooms lower; therefore I conclude, that 356 ells cost the same numbers two rooms lower, which is 3 pound, 11 shillings, 2 pence, 2:5 of 1 penny.

If 12 ells cost 12 | 1.2 | 1. 1.2  
seconds, what will | 356 | 00 | or 3. 56  
| 356 |

## 5 Example.

If 130 ells of cloth cost 26 pound, what will 3759 ells cost at that rate? I find the second number to be twice the first, but it stands one place nearer the right hand; therefore I conclude, that the third number will cost twice as much in his lower room, which is 751 pound, 16 shillings.

If 130 cost 26 pound, what cost 3759.

130      3759 | 2. 1  
26      375 | 9 751 | 8  
         | 2  
         

---

         751 | 8

## 6 Example.



6 Example.

If 75 ells 1 halfe cost 7 pound, 11 shillings, what will 328|12 seconds cost? Set them down in Decimals, and you shall find them to stand thus, 75|5 primes for the first number, and 7|55 seconds for the second number, which is the same one room nearer the right hand: so I conclude, that the third number will cost 32|85 seconds, which is 32 pound 17 shillings.

Example.

Ells.	1.2		1.2
75	5	328	50
7	55	32	85

The answer. 32 l. 17 s.

1 Example.

If 356 ells of Canvas cost 38 pound, 12 shillings, 1 penny, what will 740 ells cost at that rate? First, divide 740 by 356, the quotient will be 2, and therefore I take twice the price given for that quotient, and then whereas before I should have multiplied 38 pound, 12 shillings, 1 penny by 740, I shall need to multiply it but by 28 the remainder, and divide it by 356, makes 3|0368 fourths, to be added to the former sum, and the totall will be as in the example following.

Example.

Example.

	l.	s.	d.		d.
	38.	12.	1	38   6	1
28	2			2   8	
740 (2	<hr/>				
386	77.	4.	2	308   8	
	3.	0.	8	8:4	772   1166
	80.	4.	10	1:4	1.1080   9166

300  
 124376    1. 1. 2. 3. 4    l. d.  
 1080 | 91666    (3 | 0 3 6 8. or 3. 9 almost.  
 3566666  
 25555  
 333

Here in this last example, I multiply 38 pound, 6 primes by 28, omitting the penny, not setting it out in Decimals, and the Product is 1080 | 9 primes: then multiply 1 penny by 28, makes 28 pence, which is one prime, 166 fourths, and the totall was 1080 pound, 9116 fourths, as in the example: and in this manner you may save a great labour in multiplying your number of pounds and shillings first, and then multiply your pence by themselves, and adde into the rest in primes, seconds, &c.

2 EXAM

2 Example.

If 17 ells of Holland Cloth cost 3 *l.* 2 *s.* 5 *d.*, what will 515 ells cost at that rate? Divide 515 by 17, makes 30, by which multiply 3 *l.* 2 *s.* 5 *d.*, makes 93 *l.* 12 *s.* 6 *d.*, then the remainder of your division will be 5 ells, by which 5 multiply 3 *l.* 2 *s.* 5 *d.*, makes 15 *l.* 10 *s.* 1 *d.*, or in Decimals 15|50416 fifths; which divided by 17, makes 912 thirds, or 18 *s.* 3 *d.* almost; which added to 93 *l.* 12 *s.* 6 *d.*, makes the answer to be 94 *l.* 10 *s.* 9 *d.*: and so here in stead of multiplying 3|120833 sixths by 515, and dividing by 17, I have saved more then halfe the work.

Example.

	<i>l.</i>	<i>s.</i>	<i>d.</i>			
5						
915 (30.	3.	2.	5	3.	2.	5
17	30.			5		
17	<hr/>					
	93.	12.	6	15.	10.	1
		18.	3			
	<hr/>					
	94.	10.	9			

	23	1.2.3.4.5
15 50416	(91200	
77777		
XXXX		

3 Example.

## 3 Example.

If 7 pound buy 100 pound waight of Sugar, how many pound waight will 156 buy me at that rate? Divide 156 by 7, makes 22, 2:7, by which multiply 100, makes 2228 pound, 4:7

## 4 Example.

If 356 pieces of Callicoes cost 300 pound, 15 shillings, how much will 917 pieces cost at that rate? Divide 917 by 356, makes in the Quotient 2; therefore take the price given twice, and there will remain after your division 205; by which multiply 300|75 seconds, makes 61653|75 seconds; which divided by 356, makes 173 pound, 18 seconds, or 173 pound, 3 shillings, 8 pence, to be added to the former sum 601 pound, 10 shillings, makes 774 pound, 13 shillings, 8 pence, for the Question.

*The same question wrought without  
Reduction in Decimals..*

If 356 cost 300|75 seconds, what 917? Multiply 300|75 seconds by 917, makes 275787|75 seconds; which divide by 356, makes 774|68 seconds, or 774 pound, 13 shillings, 8 pence, as before the prooffe.

*Example.*

Example.

300   75	23	
9   17	1640	
2105   25	265632	l. 1.2.
3007   5	275787   75	(774   68
270675	3566666	
275787   75	35555	
	333	



5 Example.

If 179 pound of Indico cost 60 pound, 13 shillings, 5 pence, what will 716 pound cost at the same rate? Divide 716 by 179, makes 4 in the quotient, and nothing will remain: wherefore I conclude, that 4 times 60 l. 13 s. 5 d. which is 242 l. 13 s. 8 d. and is the answer to the question demanded.

6 Example.

If 36 pound of Cloves cost 11 pound, 6 shillings, how many pound shall I have for 354 l. Divide 11 | 3 primes by 36, makes 31388 fifths; which multiply by 354, cutting off figures for the 5 fractions, makes 111 pound, 11352 fifths, or 2 shillings, 3 pence, 1 farthing, for the answer.

Fellowship

*Fellowship in Decimals.*

To worke the Rule of Fellowship in Decimals, gather the whole number of all the moneys disbursed into one summe, and then divide the money gained or lost by that sum, and multiply that quotient so found by each severall Partners stocke disbursed, and the Products will be each severall mans gaine or losse.

*1 Example.*

Four Merchants made a Company: *A.* put in 60 pound, *B.* 80 pound, *C.* 120 pound, *D.* 140 pound, and they gained 72 pound; the Question is, what part each Merchant must have of the gaines? First, the Totall summe of all their moneyes disbursed was 400 pound, wherefore according to the Rule I divide 72 pound, adding cyphers unto it by 400, and the Quotient is one prime, 8 seconds; by which I multiply each severall mans stock disbursed, and I find *A.* shall have 10 pound, 16 shillings; *B.* 14 pound 8 shillings; *C.* 21 pound 12 shillings, and *D.* 25 pound, 4 shillings; Totall is 72 pound, as in the example.

*Example.*

Example.

60	80	120	140
18	18	18	18
<hr/>			
480	640	960	1120
60	80	120	140
<hr/>			
10,80	14,40	21,60	25,20

$$\begin{array}{r}
 \text{3} \quad \text{1.2} \quad \text{1. 1.2} \\
 72'00 \quad (18 \quad 10'80 \\
 4400 \quad \quad 1440 \\
 \quad \quad 2160 \\
 \quad \quad 2520 \\
 \hline
 \quad \quad 72'00
 \end{array}$$

2 Example.

Four Merchants made a Company, and set forth a ship to sea, which cost them 3616 pound, 13 shillings; *A.* must pay 1:3 of the money; *B.* 1:4, *C.* 1:5, *D.* 1:6, the question is, what each man must pay of the said summe? Take a number wherein the like parts may be had, which in the former book of vulgar Arithmatick, I find to be 60, whereof 1:3 is 20, and 1:4 is 15, and 1:5 is 12, and 1:6 is 10, the totall is but 57: wherefore  
I di-

I divide  $3616|65$  by 57, and the quotient is  $63|45$  seconds; which I multiply by 20, and I find *A.* shall pay 1269 pound; then I multiply by 15, and *B.* shall pay  $951|75$  seconds; and by 12, and *C.* shall pay  $761|4$  primes; and by 10, and *D.* shall pay  $634|5$  primes, the totall is  $3616|65$  seconds, the prooffe of the work.

## Example.

<i>l. l. 2</i>	<i>l. l. 2</i>	<i>l. l. 2</i>	<i>l. l. 2</i>
$63 45$	$63 45$	$63 45$	$63 45$
$ 20$	$ 15$	$ 12$	$ 10$
<hr/>			
1269 00	951 75	761 40	634 50

## 3 Example.

Three Merchants made a Company: *A.* put in  $56|6$  primes; *B.* put in  $30|8$  primes; *C.* put in  $120|4$  primes, and they gained 58 pound 16 shillings, or 58 pound 8 primes; what must each man have of the gaines? First, the Totall disbursed is 216 pound, 4 primes; by the which I divide 58 pound, 8 primes, and the quotient is 27197 fifths for one pound gaines; which I multiply by each severall mans money disbursed, and I find *A.* shall have 15 pound, 7 shillings, 10 pence halfe-penny; *B.* 10 pound, 14 shillings, 3 pence, 3 farthings;



3 farthings; C. shall have 32 pound, 13 shillings, 9 pence, 3 farthings, the Totall is 58 pound, 16 shillings, the prooffe.

*Example.*

	<i>l.</i>	<i>1.</i>	<i>2.</i>	<i>3.</i>	<i>4.</i>	<i>5.</i>	<i>6.</i>		<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
A.	15	3	9	3	5	0	2		15	7	10	2
B.	10	7	1	5	6	1	8		10	14	3	3
C.	32	6	9	0	7	9	4		32	13	9	3
tot.	58	7	9	9	9	1	4		58	16	00	0

*4 Example.*

Three Captaines agree together to divide a spoyle or booty, which they had taken, containing 7851 *li.* in this sort, *A.* is to have 1:2; *B.* 1:3; *C.* 1:4; the Question is, what each mans share shall be? Find a number which hath such parts in it, *viz.* 12, whereof 1:2 is 6, 1:3 is 4, and 1:4 is 3, which in one summe makes 13; therefore divide 7851, adding Cyphers to it by 13, and the Quotient will be 603 pound, 92307 fifths; which multiply by 6, 4, and 3, and you shall find, *A.* shall have 3623 pound, 5384 fifths; *B.* shall have 2415 pound, 69228 fifths; *C.* shall have 1811 pound, 76921 fifths: The Totall is 7850 pound, 99991 fifths,

fifths, which doth want but 1 fourth of 7851 pound, which in value is but 3:125 parts of 1 penny, and this example is to be wrought without the Goulden Rule. Behold the proof of the work.

*Example.*

	<i>l.</i>	<i>1.2.2.4.5</i>		<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q</i>
A.	3623	5 3 8 4 2		3623.	10.	9.	1
B.	2415	6 9 2 2 8		2415.	13.	10.	1
C.	1811	7 6 9 2 1		1811.	15.	4.	1
<hr/>							
	7850	9 9 9 9 1		7851.	00	00.	0

*The same example wrought  
another way.*

After you have divided 7851 pound by 13, find in your Decimall Table what the Quotient is in Coyne, makes 603 pound, 18 shillings, 5 pence, *ob.* which multiply by 6, 4, and 3, and their Totall in one summe is the answer, as before.

# Fellowship.

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<i>l.</i>	<i>l.</i>	<i>d.</i>	<i>l.</i>	<i>l.</i>	<i>d.</i>
603	9.	5. ob.	603	9.	5. ob.
	6			4	
<hr/>			<hr/>		
3623	5.	9. 00	2415	65.	10. 0
	<i>l.</i>	<i>l.</i>		<i>d.</i>	
	603	9.		5. ob.	
		3			
<hr/>			<hr/>		
	1811	75. 4. ob.			

These three severall Products added into one sum, makes 7850 *l.* 19 *s.* 11 *d.* wanting but one penny in the whole summe, which is the defect of the Decimals, which cannot be exactly set out in coyne, but it will serve to answer a Question of one million with one penny error at the most.

## 5 Example.

Three men made a stock together, and they gained 244 pound, 8 shillings: *A.* put in 315 pound 7 moneths, *B.* 408 pound 10 moneths, *C.* 500 pound 3 moneths; now the question is, what each man must have of the gaines? First, multiply each mans stock by his time, and gather all the Totalls into one summe, and they make 7785; by which divide your gaines, 244 pound, 4 primes, and the quotient

P

tient

tient will be 31393 sixths ; which multiply by the severall Products of each mans money and time, and the Totall of each severall Product is the summe desired for each mans part of the gaine.

*Example.*

A. 69	22836	69	4	6	3
B. 47	08800	47	1	9	1
C. 128	08210	128	1	8	0
<hr/>					
244	40046	244	8	0	0

*Position in Decimals.*

Three Merchants bought a parcell of Linen Cloth cost them 757 pound, 17 shillings, whereof *A.* must pay 1:4; *B.* 1:5; *C.* 1:8; what must each man pay of this sum? I take 20 for a number, wherein I can have those parts, viz. 1:4 of 20 is 5, and 1:5 of 20 is 4, and 1:8 of 20 is 2 pound 5 primes, or 2 one halfe, their totall is 11 pound, 5 primes, or 11 1:2; by which I divide 757 pound, 85 seconds, and the Quotient is 65 l. 9 primes, which I multiply by 5 for *A.* makes 329 pound 10 shillings; *B.* 263 pound 12 shillings; *C.* 164 pound 15 shillings: the totall is 757 pounds 85 seconds.

1 *Example.*

## 1 Example.

A.	B.	C.	
$\begin{array}{r} \text{l. 1} \\ 65 \end{array}   9$	$\begin{array}{r} \text{l. 1} \\ 68 \end{array}   9$	$\begin{array}{r} \text{l. 1} \\ 65 \end{array}   9$	$\begin{array}{r} \text{l. 1.2} \\ 164 \end{array}   75$
	$\begin{array}{r} 4 \end{array}$	$\begin{array}{r} 2 \end{array} \text{ 1:2}$	$\begin{array}{r} 263 \end{array}   6$
<hr/>			$\begin{array}{r} 239 \end{array}   5$
$3:9   5$	$263   6$	$164   75$	<hr/>
			$757   85$

## 2 Example.

A Ship-carpenter bought 300 Timber trees of a Gentleman, and was to pay for the first 100 a summe of money unknown, for the second twice as much as for the first 100, and for the third 100 of trees he was to pay thrice as much as he paid for the first, and the whole 300 of trees cost him 724 pound, 12 shillings, the Question is, what each hundred cost him severally? To work this Question, or any other of like nature, suppose a unite, or one pound for the first 100, then he must pay 2 pound for the second 100, which is twice as much, and then also hee must pay 3 pound for the third 100, which is three times as much as the first: but yet 1 pound, 2 pound, and 3 pound, makes but 6 pound, and it should be 724 pound 12 shillings; so that now whereas in the

former Booke I taught you to resort to the Golden Rule for the answer, saying, If six pound come of my position one pound, of what comes 724 pound, 12 shillings? Now alwayes supposing a unite for your first number, you shall save a multiplication; and so dividing of 724 pound, 6 primes by 6, I find the first 100 of trees cost him 120 pound, 15 shillings, 4 pence; and the second 100 cost him 241 pound, 10 shillings, 8 pence; and the third 100 cost him 362 pound, 5 shillings; the total makes 724 pound, 12 shillings; behold the work.

*Example.*

					l.	s.	d.	
2	4	l.	1	1	1.	120.	15.	4
724	6	(120	7.	5:2	2.	241.	10.	8
6666					3.	562.	6.	0

*The Proofs.*

724. 12. 0

*3 Example.*

Four Merchants consent to build a ship, cost them 541 pound, 16 shillings, whered *A.* must pay a certaine summe of money unknowne; *B.* must pay twice as much as *A*; *C.* must pay twice as much as *B*; and *D.* must pay as much as all the other three, viz

as *A. B. and C* ; now the question is, what each man must pay of this sum ? I suppose *A.* must pay 1 pound, then *B.* must pay 2 pound, which is twice as much as *A.* doth pay ; and *C.* must pay 6 *li.* which is thrice as much as *B.* doth pay ; and then *D.* must pay 9 pound, which is as much as all the other three doe pay ; but their totall is but 18 pound, and it should be 541 pound, 16 shillings : wherefore I divide 541 pound, 8 primes, by 18, and the quotient is 30 pound, 1 prime, or 2 shillings, for the first part. Then *B.* must pay 60 pound, 4 shillings ; *C.* 180 pound, 12 shillings ; and *D.* 270 pound, 18 shillings : their Totall makes 541 pound, 8 primes ; behold the work,

Example.

	<i>l.</i>	<i>s.</i>		<i>l.</i>	<i>s.</i>
541	8	(30   1	<i>A.</i>	30	2
188	8		<i>B.</i>	60	4
18			<i>C.</i>	180	12
			<i>D.</i>	270	18
<hr/>			<hr/>		
The prooffe.			541	16	

4 Example.

A Cesterne of water containing 600 gallons is filled with water, and hath 4 several  
P 3 Cocks

Cocks to empty the same, whereof if they be all set open at once, the Cestern will be empty in 24 houres : now the second Cock will avoid twice as much as the first Cock in 24 houres, and the third will avoid three times as much as the first, and the fourth Cock 5 times as much as the first ; the question is, how many gallons each Cock doth avoid in 24 houres of the said 600 gallons ?

I suppose the first Cock will avoid one gallon, then the second must avoid 2, and the third 3, and the fourth Cock 5 : but yet they are but a 11 gallons, and they should be 600 gallons : wherefore dividing of 600 by 11, the quotient is 54 gallons, and 6:11 of a gallon, for the first Cock. Behold the work in the example following.

*Example.*

1.1	86 Gallons.		Gallons.
2.2	660 (54, 6:11	1.	54. 6
3.3	111	2.	109. 1
4.5	x	3.	163. 7
		4.	272. 8
			2
11			
	22 (2 The prooffe.		600. 22
	xx		Of



*Of Gain and Losse in Decimals.*

If a Broad Cloth 28 yards long be sold for 14 shillings a yard, and the feller doth gaine 10 pound in the 100 ready money, what cost that Broad Cloth? First, by Practice find the price of the 28 yards, at 14 shillings a yard, makes 19 pound, 6 primes, or 19 pound, 12 shillings; divide 19 pound 6 primes by 110 pound, makes 17 pound, 81818 fifths, or in Coyne, 17 pound, 16 shillings; 4 pence, 3 farthings.

*1 Example.*

28	8929	l. 1.2.3.4.5
7	x 9600000	(17   81818
19.6	xIIIIIIII	
	xIIIIIX	
	xIIIX	

Secondly, If 28 yards cost 17 pound, 81818 fifths, what did one yard cost at that rate? Divide 17 pound, 81818 fifths by 28 yards, and the quotient will be 63636, or in Coyne, 12 shillings, 8 pence, 3 farthings, for the price that one yard cost.

P 4

*Example.*

*Example.*

$$\begin{array}{r}
 \text{XXXX} \\
 \text{X07070} \quad 1.2.3.4.5 \\
 \text{X7|8X8X8} \quad (6\ 3\ 6\ 3\ 6 \\
 \text{288888} \\
 \text{2222}
 \end{array}$$

Thirdly, for the prooffe of this work, say, If one yard cost 63636 fifts, how may I sell it to gaine 10 pound in the hundred ready money? Take the tenth part of 63636 fifts, makes 63636 sixths; which added into one Totall, makes 69999 fifts, which doth want but one fifth of 7 primes, or 14 shillings, which proves all the former works to be true.

*Example.*

$$\begin{array}{r}
 1.2.3.4.5.6 \\
 6\ 3\ 6\ 3\ 6 \\
 6\ 3\ 6\ 3\ 6 \\
 \hline
 699996
 \end{array}$$

2 *Example.*

A Merchant doth deliver money at Interest for 9 moneths, after the rate of 12 pound in the hundred, for 12 moneths simple interest,

rest, and at the end of 9 moneths doth receive for interest 87 pound; the question is, what was the sum lent? Answer: because the interest of 9 moneths at 12 pound in the hundred is 9 pound, divide 8700000 by 9 pound, and the quotient is 966 pound, 6666 fourths, or 966 pound, 13 shillings, 4 pence, the sum lent.

*Example.*

$$\begin{array}{r}
 666 \\
 8700000 \\
 999
 \end{array}
 \begin{array}{r}
 . \\
 (966 \mid 6666
 \end{array}
 \begin{array}{r}
 1. \\
 1.2.3.4
 \end{array}$$

*3 Example.*

If 13 pieces of Canvas cost 17 pound, 12 shillings, how may I sell them to gain 8 pound in the hundred? Multiply 17 pound 6 primes by 8, adding two Cyphers, makes 19 pound, 8 thirds, or 19 pound, 2 pence, almost.

The prooffe of the former example, If 17 pound, 12 shillings, gain 1 pound, 8 shillings, 2 pence, what will 100 pound gaine at that rate? Multiply 1 pound, 8 shillings, 2 pence; or in Decimals, 1 pound, 408 thirds, by 100, makes 140 pound, 800 thirds; which divide by 17 pound, 6 primes, makes 8  $\frac{4}{11}$  for the rate that 100 pound will gain; which shewes the former work to be truly wrought.

P. 5

*Exam-*

Example.

$$\begin{array}{r}
 \text{L. } 1.2.3 \\
 17 \overline{) 600} \\
 \underline{\phantom{00} 8} \\
 1 \overline{) 408} \\
 19 \overline{) 008}
 \end{array}
 \quad
 \begin{array}{r}
 0 \text{ L.} \\
 140 \overline{) 800} \quad (8 \text{ the prooffe.}) \\
 \underline{176}
 \end{array}$$

4 Example.

It in one ell of cloath sold for 3 shillings, there be gained after the rate of 12 pound in the hundred for 12 moneths, how should that ell have been sold to gaine 17 pound in the hundred for 12 moneths? Multiply 17 pound by 3 shillings, which is 1 prime, 5 seconds, and divide the Product by 12, makes 2125 fourths, or in coyn 4 shillings 3 pence; and so much must it have been sold for to gain 17 pound in the hundred.

Example.

$$\begin{array}{r}
 17 \\
 15 \\
 \hline
 85 \quad 136 \quad 1.2.3.4 \\
 17 \quad 255000 \quad (2125 \text{ or } 4s. 3d. \\
 \hline
 255 \quad 12222 \\
 \hline
 255 \quad 1111
 \end{array}$$

Secondly,

Secondly, if 3 shillings give 12 pound, what will 4 shillings 3 pence give? Multiply 2125 fourths by 12, and divide by 15 seconds, and the quotient is 17 pound, the prooffe of the last example.

*Example.*

1.2.3.4		
2125	100	L.
12	255   00	(17
555 00	155	
	x	

*5 Example.*

A Merchant sold 24 Clothes, which cost him 342 pound, wherein hee lost after the rate of 10 pound in the hundred, and tooke in exchange 560 pieces of Raysons at 24 shillings the piece, wherein hee gained 10 pound in the hundred ready money; now the question is, what his gaine or losse was, and what summe of money hee was to pay for the Raysons? First, 560 pieces of Raysons at 24 shillings a piece, is 672 pound; from which subtract 342 pound, leaves 330 pound to pay for the Raysons. Secondly, 672 pound, at 10 pound in the hundred, is 67 pound, 4 shillings, for his gaine by the Raysons. Thirdly, 342 pound lesse, 10 in the 100, is 34 pound, 4 shillings,

4 shillings, to be deducted from 342 pound ;  
and then take 34 pound, 4 shillings, from 67  
pound 4 shillings, leaves his gaine more then  
his losse to be 33 pound.

*Example.*

<i>pieces.</i>	560	672	
	12	<hr style="width: 100px; border: 0.5px solid black;"/>	342
	<hr style="width: 100px; border: 0.5px solid black;"/>	67   2 gains.	<hr style="width: 100px; border: 0.5px solid black;"/>
	672   0	34   2	34   2 losse.
	342	<hr style="width: 100px; border: 0.5px solid black;"/>	
	<hr style="width: 100px; border: 0.5px solid black;"/>	33   0 cleare gaine.	
	330 to pay.		

*6 Example.*

A Merchant receiveth for principall and  
interest 352 pound, wherein hee gained 9  
pound in the hundred for one yeare; now the  
Question is, what was the summe of money  
lent? Divide 35200/000 by 109 pound,  
makes 322 pound, 9357 fourths, or 322  
pound, 18 shillings, 8 pence halfe-penny,  
for the summe lent.

*6 Example.*

$\begin{array}{r}
 x \\
 30368 \\
 2522935 \quad l. \quad 1.2.3.4 \\
 35200|0000 \quad (322 \mid 9.357 \\
 1000000000 \\
 1000000 \\
 x1111
 \end{array}$

*7 Example.*

A Merchant hath owing unto him, 540 *li.* to be paid at the end of three yeares, now his debtor will pay him ready money, if he will abate him 9 *l.* in the hundred. Divide 540 *li.* with Cyphers by 109 three times one after the other, and the third Quotient will bee the summe that he shall pay in ready money, abating 9 *l.* in the hundred interest upon interest. Behold the worke following.

*7 Example.*

$\begin{array}{r}
 5413 \\
 1049541 \\
 54000|000 \quad (49541200 \\
 100000000 \\
 1000000 \\
 x1111
 \end{array}$

$$\begin{array}{r}
 450 \\
 59057 \\
 49541 \overline{) 200} \quad (454506 \\
 1099999 \\
 10000 \\
 111
 \end{array}$$

$$\begin{array}{r}
 70343 \\
 186174 \\
 45450 \overline{) 600} \quad (416 \overline{) 974} \\
 10999999 \\
 100000 \\
 1111
 \end{array}$$

or 416 l. 19 s. 6 d.

The prooffe is made by multiplying the last Quotient by 9, and that Product againe by 9, and thirdly againe by 9, makes 540 pound, wanting but one fifth, which is but 3:1750 parts of 1 penny, or 6:875 parts of one farthing.

### 8 Example.

A Merchant hath owing unto him 632 pound, to be paid at the end of 12 moneths, now his debtor will pay him ready money, if hee will abate him 12 pound in the hundred *per annum*. Divide 632 by 112 pound, and the



the quotient will be the sum of money that will discharge the debt, abating 12 pound in the hundred.

*Example.*

$$\begin{array}{r}
 306 \\
 748264 \\
 63200 \overline{) 000} \\
 11222 \overline{) 222} \\
 11111x \\
 111x
 \end{array}
 \quad
 \begin{array}{r}
 l. \quad 1.2.3 \\
 (564 \overline{) 285}
 \end{array}$$

or 564 l. 5 s. 8 d. ob.

9. *Example.*

324 pound was received for interest money lent a Merchant Adventurer at 17 pound in the hundred 1 yeare, what was the summe lent? Answer: divide 32400 by 17, makes 1900 pound, and 1:17 of a pound.

10. *Example.*

If 358 ells of Holland cost 124 pound, 16 shillings, how shall it be sold an ell to gaine 12 pound in the hundred ready money? First, multiply 124 pound, 8 primes by 12, adding 2 Cyphers, makes 139 pound, 776 or in coine 139 pound, 15 shillings, 6 pence. Secondly divide

# 328 *Decimall Arithmatick,*

divide 139 pound, 776 by 358, makes 3905 fourths, or 7 shillings, 9 pence, 3 farthings for the price to sell one ell to gaine 12 pound in the hundred.

*Example.*

$$\begin{array}{r}
 \text{L. } 1.2.3 \\
 124 \overline{) 800} \\
 \underline{\phantom{0} 1} \phantom{00} 2 \\
 14 \overline{) 976} \\
 \underline{\phantom{0} 0} \phantom{00} 76 \\
 139 \overline{) 776}
 \end{array}$$

$$\begin{array}{r}
 \text{II} \\
 3235 \quad 1.2.3.5 \\
 \times 38 \overline{) 7760} (3905 \\
 \underline{358888} \\
 3555 \\
 23
 \end{array}$$

*II Example.*

If one ell of cloth cost 18 pence ; how shall I sell 358 ells to gaine 7 pound, 10 shillings, by the bargaine, and at what rate in the hundred doe I gaine ? First, 358 ells at 18 pence an ell makes 26 pound, 17 shillings ; to the which adde 7 pound, 10 shillings, the gaine makes 34 pound, 7 shillings, for to sell 358 ells, to gaine 7 pound, 10 shilling by the bargaine. Secondly, divide 7 pound 500000 sixths by 26 pound, 85 seconds, and the quotient is 27 pound, 9346 fourths, or 27 pound, 18 shillings, 8 pence farthing, which is the rate.

rate gained by the 100 pound of money.

*Example.*

elles.

358 d.

75 18

	2578	
1790	213055	l. 1.2.3.4.
2506	75000000	(27   9 3 4 6
	2685555	
26850	26888	
715	268	
	2	
34,35 price.		

12 *Example.*

How much Indico of 6 shillings, 3 pence a pound will pay for 73 broad Clothes at 16 pound 1 cloth, and to pay 60 pound in present money? First, 73 broad clothes at 16 pound a cloth, makes 1168 pound, from which subtract 60 pound, there will remaine 1108 pound; which divide by 6 shillings, 3 pence, or 3125 fourths, and the Quotient is 3545 pound, 6:10 of one pound, and so much must he give of Indico for the clothes.

*Example*

## Example.

$$\begin{array}{r}
 73 \\
 16 \\
 \hline
 438 \\
 73 \\
 \hline
 1168 \\
 60 \\
 \hline
 1108
 \end{array}$$

$$\begin{array}{r}
 x \\
 188 \\
 14387 \\
 1705505 \quad l. \quad l. \\
 1108 \overline{) 00000} (3545 \quad 6:10 \\
 31255558 \\
 312 \quad 22 \\
 311x \\
 33
 \end{array}$$

## 13 Example.

How many pounds of Cloves at 6 shillings a pound, and small Sinamond of 3 shillings a pound must be given for 36 Carseys, at 4 pound, 3 shillings a piece, to have of each a like number of pounds? Answer: 36 Carseys at 4 pound, 3 shillings a piece, makes 149 pound, 8 shillings; which divided by the price of both, viz. 9 shillings, makes 332 pound of each sort.

The prooffe : 332 pound of Cloves at 6 shillings a pound, makes 99 pound, 12 shillings; then 332 pound of Sinamon at 3 shillings a pound, makes 49 pound, 16 shillings, the

the totall is 149 pound, 8 shillings, the given price of the 36 Carseys.

*Example.*

$$\begin{array}{r}
 \text{£} \quad 1,2 \\
 4 \cdot \mid 15 \\
 \quad \mid 36 \\
 \hline
 24 \mid 90 \\
 124 \mid 5 \\
 \hline
 149 \mid 4
 \end{array}$$

$$\begin{array}{r}
 149 \\
 14 \mid 4000 \text{ (332 £. of each.)} \\
 4555 \\
 \hline
 44
 \end{array}$$

14 *Example.*

Of what principall came 1000 pound principall and interest, at compound interest in three yeares at 6 pound in the hundred? Divide 1000 pound three severall times by 106, makes 839 pound 61 seconds, or 839 pound, 12 shillings, 3 pence almost, which was the summe lent at first.

*Example.*

## Example.

$$\begin{array}{r}
 34x \\
 x46622 \\
 x20000.00 \quad (943) \quad 390000 \\
 x0666666 \\
 x00000 \\
 x11x
 \end{array}$$

$$\begin{array}{r}
 510x \\
 8556 \\
 843 \quad | \quad 290000 \quad (889990 \\
 x0666666 \\
 x000000 \\
 x111x
 \end{array}$$

$$\begin{array}{r}
 x06x \\
 41154 \quad l. \quad 1 \\
 889990 \quad (839 \quad 6 \\
 x06666 \\
 x000 \\
 xx
 \end{array}$$

## 15 Example.

If 34 Tun of Wine cost 544 pound, how may a man sell a Tun to gaine 12 pound upon the hundred ready money ? First, finde the price

price of one Tun, dividing 544 by 34, makes 16 pound for the price of one Tun which it cost: then multiply 16|00 by 12 pound, makes 17 pound, 92 seconds, or 17 pound, 18 shillings, 4 pence, 4:5 of a penny, for the price to sell one Tun of that Wine to gaine 12 pound upon the 100 pound.

23	l.	1.2
544	(16	16 00
344		12
3		-----
		1 92
		-----
		17 92

*How to worke gaine and losse in pence, and parts of Pence or Farthings.*

Set out you number of pounds, shillings pence, and farthings in pence, and in tenths of one penny; and for one farthing, set out 2 primes, 5 seconds, which is one fourth of a penny, and for two farthings set out five primes, which is one half-penny; and for three farthings set downe seven primes 75 seconds, which is three quarters of one penny, and then they are apt for decimall operations both for multiplication, division, or any

any other worke of Arithmatick, without reducing them into farthings, and there will be a great deale of labour saved in these kinde of operations, as shall appeare afterwards by the examples following.

*I Example.*

What is the interest and principall of 100 pound, put forth at 10 pound in the 100 compound interest, for the space of 7 yeares, to be all received at the end of the tearme? First, put your 100 pound into pence, maketh 24000 pence; then worke as in this example following, and you shall find it will amount unto 46769 pence, and 1:5 of one penny; which divided by 240 pence, makes 194 pound, 17 shillings, 5 pence, 1:5 of a penny, which is the summe that 100 pound will amount unto at interest upon interest in 7 yeares, at 10 pound in the hundred.

---

*Example.*



*Example.*

	pence.	
100 pound makes —	24000	
	2400	
1 Yeare —	26400	
	2640	0
2 <sup>d</sup> Yeare —	29040	
	2904	0
3 Yeare —	31944	0
	3194	40
4 Yeare —	35138	40
	3513	84
5 Yeare —	38652	24
	3865	224
6 Yeare —	42517	464
	4251	7464
7 Yeare —	46769	2104

121 d.

22107

l.

467690 (194 8<sup>1</sup>

244440

222

*Total 194 l. 17 s. 5 d. 1:5*

*2 Example*

## 2 Example.

A Merchant delivered 358 *l.* at interest for 3 yeares for 8 *l.* in the hundred compound interest; the Question is, what it will amount unto at the end of the terme? Put your money into pence, makes 85920 *d*; which multiply by 8, adding 2 cyphers, and worke for yeares, as in the example following.

## Example.

		d.
358 pound is	-	85920 00
		8
		<hr/>
		6873 60
1 Yeare	—	<hr/>
		92793 600
		0000 008
		<hr/>
		7423 488
2 Yeare	—	<hr/>
		100217 08800
		00000 00008
		<hr/>
		8017 36704
3 Yeare	—	<hr/>
		108234 45504 d.
12 18 d.	l 1	
1082340	(450 9	or 450 <i>l.</i> 19 s. 6 d.
244440		
222		

*The prooffe of the former Example  
in Decimals.*

A certaine Merchant received for principall and interest upon interest 450 pound 19 shillings 6 pence, which was for money lent at 8 pound in the hundred for 3 yeares, now the question is, what was the summe lent? Place 450 *li.* 19 shillings, 6 pence in Decimals, and you will find your third Quotient wil be 358 pound, wanting some few seconds, which proves the worke good.

*3 Example.*

A Merchant lent 112 pound for 6 moneths at 17 pound in the hundred, for 12 moneths, the question is, what hee shall receive? Put your money into pence, makes 2688 pence; marke out your prime line, as in the former examples, and adde 2 Cyphers, then multiply by 17, and take halfe that product for 6 moneths interest, and adde unto the principall, and the totall is the sum of pence which hee shall receive for principall and interest at 6 moneths end.

Q

*Example*

*Example.*

$$\begin{array}{r|l}
 112 \text{ pound is—} & 26880 \quad | \quad 00 \\
 & 0000 \quad | \quad 17 \\
 \hline
 & 2688 \quad | \quad 6 \\
 & 1881 \quad | \quad 0 \\
 \hline
 & 4569 \quad | \quad 6 \text{ totall.} \\
 \hline
 & 2284 \quad | \quad 8 \text{ one half added.} \\
 \hline
 & 29164 \quad | \quad 8 \text{ the sum sought.}
 \end{array}$$

Makes 121 li. 10 s. 4 d. 4:5 of a d.

*4 Example.*

If a pound of Sinamond cost 4 shillings ready money, how may it be sold to gaine 12 pound in the hundred to give 6 moneths time? Set your 4 shillings in pence, makes 48 pence; then adde 2 Cyphers, and multiply by halfe the interest, and adde them into a sum, and the product will be 50 pence, 88 seconds, or 4 shillings, 2 pence, 2:25 of one penny for the price to sell 1 pound to gaine 12 pound in the hundred for 6 months time.

*4 Example*

*4 Example.*

$$\begin{array}{r|l}
 d & 1.2 \\
 48 & 00 \\
 \hline
 & 6 \\
 \hline
 2 & 88 \\
 \hline
 50 & 88
 \end{array}$$

Makes 50 pence, 9:10 of a penny almost.

*5 Example.*

If 112 pound waight of Cloves cost 33 pound, 12 shillings, how may I sell them to gaine 14 pound in the hundred, and give 4 moneths time? First, set downe 33 pound, 6 primes; then adde 2 Cyphers, and multiply by 14, makes 4 pound, 704 thirds, of which take the third part, because 4 months is the third part, of 1 yeare, which is 1 pound. 568 thirds; which added into one totall, makes 35 pound, 3 shillings, 4 pence, halfe-penny for the price to sell 112 pound to give 4 moneths time, and to gaine 14 pound in the 100 in 12 moneths.

Q 2

*5 Example.*

5 Example.

$$\begin{array}{r}
 33 \overline{) 600} \\
 \underline{\phantom{00} 14} \\
 1 \overline{) 344} \\
 \underline{\phantom{00} 3} \phantom{00} 36 \\
 4 \overline{) 704} \\
 \underline{\phantom{00} 1} \phantom{00} 568 \\
 35 \overline{) 168}
 \end{array}$$

6 Example.

If in 112 pound waight of Sugar, sold for 7. pound, 12 shillings ready money, there were gained 11 pound in the hundred, what did one pound cost at first penny? First, divide 7 pound, 6000000 by 111 pound, which is the principall and interest given, and the Quotient is 6 pound, 84684 fifties, which 112 pound cost ready money. Secondly, divide that Quotient by 112 pound, makes 61132 sixtis, or 14 pence, 3 farthings for the price that one pound cost at first penny.

7 Example

7 *Example.*

If 300 pieces of Lawne cost 321 pound, 4 shillings, how may I sell them to lose 15 pound in the hundred? First, take the rate what one cost, by dividing 321 pound, 2 primes by 300, makes 1 pound, 0706666 sevenths, or one pound one shilling 5 pence almost, for the price that one piece cost. Secondly, take the interest of 1|0706666 seventh, at 15 pound in the hundred, and subtract it, and then it makes 91000 sixths, or 18 shillings, 2 pence, 2:5 of a penny, for the price to sell one piece to lose fiftene pound in the hundred ready money. Thirdly, for the prooffe of this worke, say; If one piece cost 910067 sixths, what will 300 pieces cost at that rate? Multiply 910067 sixths by 300 and cut off 6 figures to the right hand, makes, 273 pound, 5 pence almost, for the sum received for 300 pieces to loose 15 pound in the 100.

Q 3

*Example*

*Example.*

$$\begin{array}{r} 22222 \quad l. \quad 1.2.3.4.5.6 \\ 322 \overline{) 2000000} \quad (1 \overline{) 706666} \\ 3333333300 \end{array}$$

$$\begin{array}{r} 107666600 \\ 15 \\ \hline 160599 \\ \hline 910067 \end{array}$$

$$\begin{array}{r} 1.2.3.4.5.6 \\ 910067 \\ 300 \\ \hline \end{array}$$

$$273 \overline{) 020100}$$

$$\begin{array}{r} 1.2.3 \\ 321 \overline{) 200} \\ 15 \\ \hline 48 \overline{) 18} \end{array}$$

$$273 \overline{) 02} \quad \text{The prooffe.}$$

*8 Example.*

If in one ell of Cloth sold for 3 shillings, 2 pence, halfe-penny, there were gained 10 pound in the hundred ready money, what did that ell cost ? Answer : set 3 shillings 2 pence, halfe-penny, in Decimals, makes 38 pence, 5 primes ; then divide 38 pence, 5000 fourths, by 110 pound, makes 35 pence, the price that one ell cost.

*Example*



*Example.*

$$\begin{array}{r} 38 \overline{) 1100} \quad (35 \text{ d. the price one cost} \\ 1100 \\ \hline \end{array}$$

*9 Example.*

If in one ell of Cloth sold for 25 pence, 19 seconds, there were gained 7 pound in the hundred ready money, what did that ell cost, when there was 6 moneths time given ? Divide 25 pound, 1900 fourths, by halfe the interest, adding 100, which is 103 pence, 5 primes, and the quotient is 34 pence, the price that the ell cost.

$$\begin{array}{r} 474 \quad d. \\ 25 \overline{) 10358} \quad (34 \\ 10358 \\ \hline 103 \end{array}$$

*10 Example.*

A Merchant lent money at 10 pound in the hundred for 100 pound profit for 12 moneths, and at the end of 6 moneths hee received principall and interest 356 pound, the question is, what was the sum lent ? Divide 356 pound by 105 pound, which is the halfe

Q 4

years

yeares interest and principall, and the quotient is 305 pound, 5:205 of a pound, for the summe lent.

*Example.*

$$\begin{array}{r}
 9 \\
 4155 \quad \text{L.} \\
 35600 \quad (339 \text{ } 5:105 \text{ of a li.} \\
 10555 \\
 200 \\
 .x
 \end{array}$$

*11. Example.*

If 17 pound lose 12 shillings, what will 100 pound lose? Divide 60000 fifts by 17, makes 3 pound, 529 thirds, or 3 pound 10 s. 7 pence in the 100 pound.

*12 Example.*

If 37 yards of Velvet cost 32 pound, how must one yard bee sold to gaine 9 pound, 10 shillings in the hundred? First, 32 pound the price at 9 pound, 5 primes the hundred, makes 35 pound, 4 seconds; which divide by 37, makes the price of one yard to bee 9:702 fifts, or 18 shillings, 11 pence, halfe-penny, to sell one yard to gaine 9 pound, 10 shillings in the hundred.

*Example.*

Example.

$$\begin{array}{r}
 \text{L.} \quad 1.2.3 \\
 32 \mid 000 \\
 \hline
 \quad \quad 95 \\
 \hline
 \quad \mid 160 \\
 2 \mid 88 \\
 \hline
 35 \mid 040
 \end{array}$$

$$\begin{array}{r}
 .2 \\
 1761 \quad 1.2.3.4 \\
 350400 \quad (9470 \\
 3777 \\
 33
 \end{array}$$

or 18 s, 11. d. ob.

## Exchange in Decimals.

1 Example.

**I**F one pound sterling be 1 pound 14 shillings, 6 pence Flemish, what is 783 pound sterling in Flemish money? Set out 1 pound, 14 shillings, 6 pence in Decimals, makes one pound, 725 thirds; which multiply by 783 pound, makes 1350 pound, 675 thirds, or 1350 pound 13 shill, 6 pence.

Q5

Example

## Example.

$  \begin{array}{r}  l. \overline{1.2.3} \\  1 \overline{725} \\  \hline  783 \\  5 \overline{175} \\  138 \overline{00} \\  1207 \overline{5} \\  \hline  1350 \overline{677}  \end{array}  $	$  \begin{array}{r}  \overline{1.2.3} \\  275 \\  \hline  783 \\  \hline  825 \\  22 \overline{00} \\  192 \overline{5} \\  \hline  215 \overline{325}  \end{array}  $
$  \begin{array}{r}  l. \overline{1.2.3} \\  215 \overline{325} \\  1350 \overline{675} \\  \hline  1566 \overline{000}  \end{array}  $	

*The prooffe.*

## 2 Example.

If one pound exchange bee 5 shillings 6 pence, what is 783 pound? Set 5 s. 6 d. in Decimals, makes 275 thirds; which multiply by 783, makes 215 pound, 325 thirds, or 215 pound, 6 shillings 6 pence; which added to the last example, is 1566 pound, and so much is the double of the summe given, viz. of 783 pound, because the 2 prices given makes just 2 pound, and this by working a second question in exchange, the first is proved to be truly wrought, as appeareth in the Example above.

## 3 Example

3 Example.

If one pound exchange be one pound, 17 shillings, 7 *d. ob.* what is a thousand pound at that rate? Set 1 *l.* 17 *s.* 7 *d. ob.* in Decimals makes 1 pound, 88125 fifts; then because 1000 hath 3 Cyphers, adde 3 Cyphers, and cut off 5 figures, and the answer is 1881 *li.* 5 shillings.

$$\begin{array}{r} 1.2 \\ 188125000 \end{array}$$

4 Example.

A Merchant doth receive 134 pound, 6 shillings for the exchange of one hundred pound sterling from *Middleborough*, what was one pound sterling in Flemish money? Place 134 pound, 6 shillings in Decimals, is 134 pound, 3 primes; then because 100 pound hath 2 Cyphers, cut off two figures more to the left hand, and it will be 1 pound, 343 thirds; or in Coyne, one pound, 6 shillings, 11 pence farthing, for the exchange of one pound at that rate.

$$\begin{array}{r} l. \quad s. \quad d. \quad q. \\ 1 \quad 1 \quad 2 \quad 3 \\ 1 \quad 3 \quad 4 \quad 8 \end{array} \quad \begin{array}{r} li. \quad s. \quad d. \quad q. \\ or \quad 1 \quad 6 \quad 11 \quad 1 \end{array}$$

5 Example.

## 5 Example.

A Merchant doth receive 645 pound, 12 shillings for exchange money, at 1 pound, 7 shillings, 6 pence, for one pound sterling, the question is, how much sterling money he did deliver? Divide 645 pound, 6 primes, by 1 pound, 375 thirds, or 1 pound, 7 shillings, 6 pence, makes 469, 5268 fourths, or 469 *li.* 10 shillings, 6 pence, 1 farthing, for the sterling money delivered.

## 6 Example.

If 1 pound sterling be 1 pound, 7 shillings 6d. Flemish, what is 100 *l.* Flemish in sterling Coine? Divide 100 pound by 1 pound, 375 thirds, makes 72 pound, 72727 fifths; or 72 pound, 14 shillings, 6 pence, halfe-penny, that 100 *l.* makes.

## 7 Example.

If the exchange bee from *Rome* to *London* at 69 pence sterling one Duckat, how many Duckats shall bee delivered at *Rome* for to receive 356 pound, 16 shillings sterling at *London*? Answer. Divide 356 pound, 8 primes by 2875 fourths, which is 69 pence, and the Quotient will bee 1241 Duckats, 3 pence.

$$\begin{array}{r}
 31 \\
 \times 1802 \\
 \hline
 693005 \\
 35618000 \\
 2875555 \\
 28777 \\
 288 \\
 2
 \end{array}$$
 (1241 Duckats, and  
there remaines 3 d.

8 Example.

If the exchange be from *London* unto *Ant-  
werp*, at 23 shillings, 5 pence, 3 farthings *Fle-  
mish* the pound sterling, how much money  
must be delivered at *London*, to receive 146 l.  
14 s. 10 d. 3 q. in *Flemish* money? Answer :  
Divide 146 pound, 744775 sixths, by 1 li.  
3 s. 5 d. 3 q, which is 1 pound, 1739582 se-  
venths, and the quotient is 125 pound ; and  
so much must he deliver at *London*, to receive  
146 pound, 14 shillings, 10 pence, 3 farthings  
in *Flemish* coyne, at that rate.

Example.

$$\begin{array}{r}
 586079 \\
 29348951 \\
 \times 4617447750 \\
 \hline
 \times 173958222 \\
 \times 1739588 \\
 \times 17388
 \end{array}$$
 L. (125

9 Exam-

## 9 Example.

A Merchant doth deliver at *Antwerp* 200 pound Flemish by exchange for *London*, at 22 shillings, 10 pence Flemish for 1 pound sterling; how much must he receive at *London*? Answer: Divide 200 pound by 1 pound, 141666 sixths, which is 22 shillings, 10 pence, makes 175 pound.

*A generall Rule for exchange  
in Decimals.*

If the price of a unite be given, then alwaies divide the sum of money whereon the question dependeth by that unite in Decimals, and the quotient is the answer to the question.

## 1 Example.

A Merchant doth deliver 100 pound sterling by exchange for *Rome*, at 72 pence sterling for 1 Duckat *De Camera*; the question is, how many Duckats he must receive at *Rome* for his 100 pound sterling? Here the price of 1 Duckat is given to be 72 pence, which is 6 shillings, or 3 primes; wherefore I divide 100 pound by 3 primes, and the quotient is 333 pound, 1:3 of a pound, or 6 shillings, 8 pence, for answer to the question.

## 2 Example.





## 4 Example.

A Merchant at *Venice* doth deliver 800 Duckats by exchange for *London*, at 64 pence ob. the Duckat sterling money, the Question is, how much sterling hee must receive at *London*? Set out 64 pence halfe-penny in Decimals, makes 26875 fifths; which multiply by 800, and cut off 5 figures, because your fractions are 5, and the Product will be 215 pound sterling.

$$\begin{array}{r} 1.2.3.4.5 \\ 26875 \\ 800 \end{array}$$

---


$$215|00000$$

Makes 215 pound sterling.

## 5 Example.

A Merchant doth deliver 1000 duckats by exchange for *London*, at 71 pence sterling for one duckat, how much must hee receive sterling money at *London*? Set out 71 pence in Decimals, makes 2958 fourths, 1:3, and adde 3 cyphers

3 cyphers for 1000, and cut off 4 figures, makes 295 pound, 8 primes, 1:3, or 295 pound, 16 shillings, 8 pence, for the Answer.

$\begin{array}{r} \text{L. } 1 \\ 295 \mid 8000 \end{array}$  Makes 295  $\text{L.}$  8 primes, 1:3

*6 Example.*

One penny Flemish is 3:5 of one penny sterling, and 1 pound Flemish is 3:5 of 1 pound sterling, or 12 shillings; wherefore to convert Flemish money into sterling Coyne, multiply your Flemish money by 3:5, which in Decimals is 6:10, or 6, and the Product will be the value of your Flemish money in sterling Coyne. In 345 Flemish, how much sterling Coyne? Multiply 345 by 6 primes, and the Product is 207 pound sterling.

$\begin{array}{r} \text{L. } 1 \\ \text{In } 345 \mid 6 \\ \hline 207 \mid 0 \end{array}$

$\begin{array}{r} \text{L. } 1 \\ \text{In } 7856 \mid 6 \\ \hline 4714 \mid 08 \end{array}$

*7 Exam-*

## 7 Example.

In 756 pound, 18 shillings sterling, how much Flemish coyne, when 1 penny Flemish is 3:5 of a penny English? Divide 756 pound 9 primes, by 6 primes, makes 1261 pound, 5 primes, or 10 shillings.

$$\begin{array}{r}
 1261 \\
 756 \overline{) 900} \\
 \underline{666} \phantom{00} \\
 23400
 \end{array}
 \quad
 \begin{array}{r}
 \text{li.} \quad 1 \\
 (1261 \quad 5
 \end{array}$$

---

*Reduction of Measures from one place to another.*

**I**F you will reduce the measure of one Countrey into the measures of another; as if you would reduce the measures of *Antwerpe*, *Gaunt*, *Brudges*, *Sivill*, *Roaven*, or of any other Countrey, into the measures at *London*; learne first the order of measuring of all sorts of commodities in both places, either out of the experience of Merchants and Tradesmen in those places, or out of the best and latest approved Authours that have written Tables to that effect, and note that 4 ells at *London* makes 5 yards, and 100 ells at *London* is at  
*Antwerpe*

Ells.

Antwerpe	166. 2:3
Gawnt short measure	164
Gawnt long measure	154
Brudges	164
Arras	165
Calice	157
Lisse	166
Mastrich	173
Cullen	208
Franckfort	208
Noremberge	174
Dantringe	139
Roven	103
Paris	95
Licons	100

Genna	480. 2:3	Palmes.
Millain	214	Braces.
Florence	188	Braces.
Venice	for Silke hath	196 Ells.
	for Linnen hath	180 Ells.
Rome	56	Cana.
Lisborne	100	Varras.
Madera	104	Varras.
Sivill	135	Varras.

These I have taken out of Masterfons  
Arithmatick.

The

The difference of 1 hundred Ells, Palmes, Varras, or Braces, being found of any place from *London*; if you would convert the measures of any of those places to *London* measure: as for example, If you would convert 356 ells of *Brudges* measure into ells at *London*, you shall find in the Table, that 164 ells makes 100 at *London*; then by the Rule of Three say,

1 Example.

If 164 be 100, what are 356 ells? Multiply 356 by 100, and divide by 164, makes 217 ells, 12:164 of an ell, which 356 at *Brudges* will make in *London*. But according to the order of Decimals, if you will bring the measures of other places to those of *London*, set your number of one hundred found in the Table, to a unite in Decimals; as in the last example 164 stands thus 1'64 seconds, then you need but divide your number 356 by 1 ell, 64 seconds, and the Quotient is 217 ells, 12:164 ells, as in the last example.

Againe, if you would reduce *London* measure to the measures of any other place; find the number of 100 to that place, and set it in  
Deci-

# Reduction of measures. 357

Decimals, and multiply your number of ells at *London* by those numbers found, and the Product will be your desire.

## 2 Example.

In 758 ells at *London*, how many ells at *Dantz*? I find in the Table 139 ells there make 100 at *London*; so I set 139 to a unite, and it is 1 ell, 39 seconds; by which I multiply 758, makes 1053 ells, 62:100 parts.

## 2 Example.

### 1 Example.

		758		00
		1		39
		<hr/>		
xxi				
2862	Ells.			
35600	(217. 12:164	68		22
16444		227		4
169		758		
x		<hr/>		
		1053		62

## 3 Example.

### 3. Example.

If 166 ells 2:3 at *Antwerp* be 100 ells at *London*, how many ells at *London* are 1756 ells at *Antwerp*? Set 166, 2:3 to a unite, makes 1 ell, 66 seconds, and 2:3 of a second: Or otherwise, 1 ell, and 2:3 of 1 ell; by which divide 1756, makes 1053, 1:2

8070  
894732  
R7568 00000  
R666666  
R66666  
I666  
R6

Ells.  
(1053 1:2 almost

4 Example.

In 3258 ells at *London*, how many Braces at Millain? Find 214 for 100 at *London*, so that if you set 214 to a unite, it will be 2 Braces, 14 seconds; by which multiply 3258, makes 6982 Braces, and 12:100 parts of a Brace.

And in this manner you may easily convert your Measures or Waights from one place to another, either by Multiplication or Division, without



without the Goulden Rule : But of this, if it please God to lend me life and health, I doe purpose to speak in a Treatise at large of Decimall Arithmatick, for the good of my Countrey-men and others, if I find these my labours and endeavours to be acceptable and beneficiall to others; and will better informe my selfe by Merchants, who have had experience in the Reduction of Waights and Measures from place to place : In the meane time, here is a foundation laid to worke upon, let the difference be what it will : And so for this time I will end this Treatise of Decimall Arithmatick, and goe in hand with some operations of Annuities, as followeth.

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Of

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## Of Interest and Annuities.

*How to frame Tables to work Interest  
and Annuities, or Purchases,  
at any rate.*

**F**Or as much as these kind of operations of Interest and Annuities are very tedious and troublesome, if they be to be wrought for many yeares, although I have already in the former Book set forth many severall manners of working those kind of Questions, after a more easie kind of method, then heretofore hath been published by any other in the like kind whatsoever, yet here I have thought good also in this place, to shew the wayes, whereby any man that is desirous to be satisfied in the reasons or grounds of those kind of works, may be able to calculate for his own use a Table or Tables, whereby to abbreviate those kind of operations, by Multiplication, or Division onely, without the help of the Golden Rule, or any tedious Reductions of Multiplications and Divisions, for many years to come, at one onely operation; as shall appear by the examples following.

*How*

*How to calculate the Table or Breviat  
of 10 pound in the hundred Com-  
pound Interest.*

If you will calculate a Table for 10 pound in the hundred compound Interest for 21 or 30 yeares; Place your numbers as in the examples following, beginning with a unite, or 1, adding 7 cyphers unto it, and then take the tenth part of that, which is the same numbers one roome more to the right hand, and adde them into the first numbers, and the totall will be the sum for the first yeare; and so you must work for the second, third, fourth, &c. untill 21, or 30 yeares: But here you shall note, that you shall not need to set down in your Breviate more then 8, 9, or 10 numbers at the most, for because the rest will be superfluous; as for example.

---

**R***Example.*

## Example.

Inter.	1.2.3.4.5.6.7.8	Years	Inter.	1.2.3.4.5.6.7.8	Years
I	00000000 I	0	2	35794769 23579476	9
I	10000000 II	1	2	59374246 25937424	10
I	21000000 I2I	2	2	85311670 28531167	11
I	33100000 I33I	3	3	13842837 31384283	12
I	46410000 I464I	4	3	45227121 34522712	13
I	61051000 I6105I	5	3	79749833 37974983	14
I	77156100 I77156I	6	4	17724816 41772481	15
I	94871710 I948717I	7	4	59497298 45949729	16
2	14358881 21435888	8	5	05447028 50544702	17
2	35794769	9	5	55991731 55599173	18
			6	11590904	19

Here

Here you may see in this Table the manner of gathering the Breviate of 10 pound in the hundred, Compound Interest, which you may extend to what number of yeares you please, onely adding a unite in the eight place, as you see the figures in the ninth place doe arise: and now I will here set down the Breviate from one yeare unto 40, ready gathered.

---

R 2

The

---

The Breviat of 10 pound in the hundred per  
annum, Compound Interest, for  
40 yeares.

Years	1	2	3	4	5	6	7	8	Years	1	2	3	4	5	6	7	8	9
1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1	4	6	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1	6	1	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0
6	1	7	7	1	5	6	1	0	0	0	0	0	0	0	0	0	0	0
7	1	9	4	8	7	1	7	1	0	0	0	0	0	0	0	0	0	0
8	2	1	4	3	5	8	8	8	0	0	0	0	0	0	0	0	0	0
9	2	3	5	7	9	4	7	6	0	0	0	0	0	0	0	0	0	0
10	2	5	9	3	7	4	2	4	0	0	0	0	0	0	0	0	0	0
11	2	8	5	3	1	1	6	7	0	0	0	0	0	0	0	0	0	0
12	3	1	3	8	4	2	8	3	0	0	0	0	0	0	0	0	0	0
13	3	4	5	2	2	7	1	2	0	0	0	0	0	0	0	0	0	0
14	3	7	9	7	4	9	8	3	0	0	0	0	0	0	0	0	0	0
15	4	1	7	7	2	4	8	1	0	0	0	0	0	0	0	0	0	0
16	4	5	9	4	9	7	2	9	0	0	0	0	0	0	0	0	0	0
17	5	0	5	4	4	7	0	2	0	0	0	0	0	0	0	0	0	0
18	5	5	5	9	9	1	7	3	0	0	0	0	0	0	0	0	0	0
19	6	1	1	5	9	0	9	0	0	0	0	0	0	0	0	0	0	0
20	6	7	2	7	4	9	9	9	0	0	0	0	0	0	0	0	0	0
21	7	4	0	0	2	4	9	9	0	0	0	0	0	0	0	0	0	0
22	8	1	4	0	2	7	4	9	0	0	0	0	0	0	0	0	0	0
23	8	9	5	4	3	0	2	4	0	0	0	0	0	0	0	0	0	0
24	9	8	4	9	7	3	2	6	0	0	0	0	0	0	0	0	0	0
25	1	0	8	3	4	7	0	5	9	0	0	0	0	0	0	0	0	0
26	1	1	9	1	8	1	7	6	5	0	0	0	0	0	0	0	0	0
27	1	3	1	0	9	9	9	4	1	0	0	0	0	0	0	0	0	0
28	1	4	4	2	0	9	9	3	6	0	0	0	0	0	0	0	0	0
29	1	5	8	6	3	0	9	2	9	0	0	0	0	0	0	0	0	0
30	1	7	4	4	9	4	0	2	2	0	0	0	0	0	0	0	0	0
31	1	9	1	9	4	3	4	2	4	0	0	0	0	0	0	0	0	0
32	2	1	1	1	3	7	7	6	6	0	0	0	0	0	0	0	0	0
33	2	3	2	2	5	1	5	4	3	0	0	0	0	0	0	0	0	0
34	2	5	5	4	7	6	6	9	7	0	0	0	0	0	0	0	0	0
35	2	8	1	0	2	4	3	6	7	0	0	0	0	0	0	0	0	0
36	3	0	9	1	2	6	8	0	3	0	0	0	0	0	0	0	0	0
37	2	4	0	0	3	9	4	8	4	0	0	0	0	0	0	0	0	0
38	3	7	4	0	4	3	4	3	2	0	0	0	0	0	0	0	0	0
39	4	1	1	4	4	7	7	7	5	0	0	0	0	0	0	0	0	0
40	4	5	2	5	9	2	5	5	3	0	0	0	0	0	0	0	0	0

How

*How to calculate a Table or Breviat at any rate under or above 10 pound in the hundred Compound Interest.*

If you would calculate a Table or Breviat at any rate under or above 10 pound in the hundred compound interest, place a unite with 7 Cyphers to it ; then if you will calculate for 12 pound in the hundred, or 16 pound ; set your 12 or 16 under the 2 first Cyphers next the unite, and multiply your unite, omitting the Cyphers by your interest, and adde the Product into one Totall, and the summe is the principall and interest for the first year, and so work again for the second, third, &c., To finish your Table, as aforesaid, at 10 pound in the hundred. But if your interest be under 10 pound in the hundred, place your number of the interest under the second Cypher from your unite, and worke as is in the example following.

## Example.

Inter.	1.2.3.4.5.6.7.8	Years	Inter.	1.2.3.4.5.6.7.8	Years
1	000000000 80		1	36048896 8	4
1	080000000 8	1		10883904	
	864		1	46932800 8	5
1	166400000 8	2		11754624	
	93312		1	5868743 8	6
1	25971200 8	3	1	7138242	7
	10077696				
1	36048896	4			

In this manner you may proceed infinitely.  
And thus much shall suffice for making of  
these Breviats.

The



*The Breviat of 8 pound in the hundred per annum, Compound Interest, for 30 yeares.*

Years   1.2.3.4.5.6.7.8								Years   1.2.3.4.5.6.7.8									
1	1	0	8	0	0	0	0	16	3	4	2	5	9	4	2	6	
2	1	1	6	6	4	0	0	17	3	7	0	0	0	1	8	0	
3	1	2	5	9	7	1	2	18	3	9	9	6	1	1	9	4	
4	1	3	6	0	4	8	8	19	4	3	1	5	7	0	1	0	
5	1	4	6	9	2	2	8	20	4	6	6	0	9	5	7	1	
6	1	5	8	6	8	7	4	21	5	0	3	3	8	3	3	7	
7	1	7	1	3	8	2	4	22	5	4	3	6	5	4	0	4	
8	1	8	5	0	9	3	0	23	5	8	7	1	4	6	3	6	
9	1	9	9	9	0	0	4	24	6	3	4	1	1	8	0	7	
10	2	1	5	8	9	2	4	25	6	8	4	8	4	7	5	1	
11	2	3	3	1	6	3	8	26	7	3	9	6	3	5	3	2	
12	2	5	1	8	1	7	0	27	7	9	8	8	0	6	1	4	
13	2	7	1	9	6	2	3	28	8	6	2	7	1	0	6	3	
14	2	9	3	7	1	9	3	29	9	3	1	7	2	7	4	8	
15	3	1	7	2	1	6	9	30	1	0	0	6	2	6	5	0	6

*The use of these Breviates and Tables, and of  
all others of like nature in working of que-  
stions of Interest and Annuities,*

*1 Rule.*

To find what will bee the amount of one pound forborne for any number of yeares by compound interest after any rate *per cent.* so that you have a Breviate for the rate proposed. Enter the Breviat for the rate proposed, and find in the left Margine, &c. the number of yeares, and from that number so found, cut off 7 Figures, the answer is in pounds, primes, seconds, thirds, fourths, &c. for the answer to the question demanded.

*1 Example.*

What is one pound put forth at Interest compound, at 10 pound in the hundred worth, to be paid at the end of 18 yeares? Find the eighteenth number in the Breviat, which is 5|5599173; from which cut off seven figures to the right hand, and the answer is 5 pound, 11 shillings, 2 pence, 9.

*Example.*

1. 1. 2. 3. 4. 5. 6. 7

5|5 5 9 9 1 7 3

Makes 5 l. 11 s. 2 d. 9.

*2 Example*

## 2 Example.

What is 100 pound due at 7 yeares ende worth to be paid at the end of the terme, at 10 in the hundred compound interest; Find the seventh number in the Table of 10 pound in the hundred, makes 19487171; to the which adde 2 Cyphers, because 100 l. hath 2 Cyphers, and cut off 7 figures to the right hand, and the sum is 194 pound, 87171 fifts for the Answer.

l. 1.2.3.4.5  
194|8 7 1 7 100, Or 194 l. 17 s. 5 d. almost.

## 3 Example.

What will 758 pound for 6 yeares make at 10 pound in the 100 compound Interest, to be paid at the end of the terme? Find the sixth number in the Table of 10 pound in the 100, which is 17715610; which multiply by 758, the money named in the question, and the Product, cutting off 7 figures to the right hand, makes 1342 pound, 16 shillings, 10 pence, *ob.* almost.

1.2.3.

$$\begin{array}{r}
 \begin{array}{ccccccc}
 1 & 2 & 3 & 4 & 5 & 6 & 7 \\
 1 & 7 & 7 & 1 & 5 & 6 & 10 \\
 & & & & & 7 & 58
 \end{array} \\
 \hline
 \begin{array}{ccccccc}
 1 & 4 & 1 & 7 & 2 & 4 & 880 \\
 & 8 & 8 & 5 & 7 & 8 & 050 \\
 1 & 2 & 4 & 0 & 0 & 9 & 270
 \end{array} \\
 \hline
 1342 | 8432380
 \end{array}$$

## 2 Rule.

How to find what any yearly annuity will make to be paid all at the end of the terme: First, find the number of years of the annuity given, and from the number answering, deduct a unite in the first place to the left hand, and adde a Cypher to the last figure to the right hand, and cut off 7 figures to the right hand, and the answer is found.

## 1 Example.

What will 1 pound annuity make, to be paid for at the end of the terme of 16 years at 10 pound in the hundred compound interest? Find the sixteenth number in the Table of 10 pound in the hundred, and subtract a unite.

unite from the first figure to the left hand, adding a Cypher to the right hand, makes 359497290; from the which cut off 7 figures to the right hand, makes 35 pound, 18 shillings, 11 pence, 3 farthings.

$$\begin{array}{r} 1. \quad 1.2.3.4.5.6 \\ 35 \mid 9497290 \end{array}$$

*2 Example.*

What will 1000 pound annuity yearly amount unto, to be all forborne untill the end of the terme of 5 yeares at 10 pound in the hundred compound interest? Find the fifth number in the Table of 10 pound in the hundred, and subtract a unite from the first figure, adding a Cypher in the last place, makes 61051000; then because 1000 pound hath 3 Cyphers, adde 3 Cyphers, and cut off 7 figures makes 6105 pound, 2 shillings, for the answer.

$$\begin{array}{r} 1. \quad 1.2.3.4.5.6.7 \\ 6105 \mid 10000000 \end{array}$$

*3 Example.*

What will 142 pound annuity make, to be payd at the end of the terme of 10 yeares? Find.

Find the tenth number in the Breviat of 10 pound in the hundred, and subtract a unite in the first place, adding a cypher to the last, makes 159374240; which multiply by 142 pound, the annuity named, and from the Product cut off 7 figures to the right hand, and the answer to the question is 2263 pound, 2 shillings, 2 pence, 3 farthings.

$$\begin{array}{r}
 1. \ 1.2.3.4.5.6.7 \\
 159374240 \\
 \quad \quad \quad 142 \\
 \hline
 318748480 \\
 637496960 \\
 159374240 \\
 \hline
 2263 \overline{) 142080}
 \end{array}$$

3. *Rule.*

How to find what any sum of money due at the end of any number of yeares is worth in ready money, at 10 pound in the hundred compound interest. Enter the Table of 10 pound in the hundred with your number of yeares, and the numbers which doth answer in the Table is your Divisor; then adde 7 Cyphers to your summe of money given, to make your Dividend; then divide your Dividend by your Divisor, and the Quotient, adding



Having found what 1000 pound due at 7 yeares end is worth in ready money, if you will find what 100 pound, or 10 pound, or 1 pound is worth in ready money; place your Quotient in Decimals, and marke out your prime lines, cutting off one figure for 100 pound, 2 for 10 pound, or 3 for 1 pound, the answer is as followeth.

*Example.*

For 100 l.

For 10 l.

For 1 l.

l. 1.2.3.4	l. 1.2.3.4.5	1.2.3.4.5.6
5 1   3 1 5 8	5   1 3 1 5 8	5 1 3 1 5 8
51 l. 6 s. 3 d. 3 q.	5 l. 2 s. 7 d. 2 q.	10 s. 3 d. 1 q.

2 *Example.*

What is 750 pound due at 5 yeares end worth in ready money, at 10 pound in the hundred compound Interest? Find the fifth number in the Table of 10 pound in the hundred, which is 16105100 for Divisor; then place 10 Cyphers before your number given 750 pound, and mark out your prime line, and divide by your Divisor, and the Quotient will be 465 pound, 13 shillings 10 pence for the answer to the question given.

*Example.*



## Example.

$$\begin{array}{r}
 1 \\
 \times 46 \\
 \hline
 111259 \\
 9165848 \\
 1037964541 \\
 750000000000 \\
 16105111111 \\
 161055555 \\
 1610511 \\
 16105 \\
 161 \\
 1
 \end{array}
 \begin{array}{r}
 1.1.2.3 \\
 (+65|6.91
 \end{array}$$

Makes 465 pound, 13 shillings, 10 pence.

## 3 Example.

What is 847 pound due at 21 yeares end worth in ready money, at 10 pound in the hundred compound Interest? Find the 21 number in the Table of 10 pound in the hundred for Divisor, which is 74002499; then set 10 Cyphers to your numbers given, makes 847000000000 for your Dividend; then divide, and the quotient will be 144 l. 9 s. 1 d. 1:5 of 1 d. the answer.

Example.

## Example.

$$\begin{array}{r}
 4139 \\
 411418 \\
 32715119 \\
 2297252144 \\
 106975011445 \quad \text{L. 1.2.3} \\
 8470000000000 \quad (1141455) \\
 7400240000000 \\
 740024000000 \\
 740024444 \\
 7400222 \\
 74000 \\
 740
 \end{array}$$

Makes 114 l. 9 s. 1 d. 15 of a penny.

## 4 Rule.

How to find what any yearly Annuities for any number of yeares is worth in ready money at 10 pound in the hundred compound interest. Enter the Table of 10 *li.* per cent. with your number of yeares given, and from the numbers found, subtract a unite in the first place, and place a Cypher in the last for your Dividend; which divide by the number found in the Table against your yeare given, & the quotient is the answer to the question.

1 Example.

## 1 Example.

What is 100 pound *per annum* annuity, for 21 yeares worth in ready money at 10 pound in the hundred compound interest? Looke in the Table of 10 pound in the hundred for 21 yeares, and subtract a vnite in the first place, and adde a Cypher in the last, makes 640024990: Divide this by 74002499, the 21 number, adding cyphers, and marking the prime line, and the quotient is 864 pound, 17 shillings, 4 pence 2 farthings for the answer to the question demanded.

## Example.

$$\begin{array}{r}
 562 \\
 41677 \\
 3602177112 \\
 4800499864 \quad 869. \quad \text{li. } 123 \\
 6400249990 | 000 \quad (864 | 869 \\
 7400249999999 \\
 74002499999 \\
 740024444 \\
 7400222 \\
 74002 \\
 740
 \end{array}$$

## 2 Example.

Having found what 100 pound annuities will

will amount unto, if you would know what 10 pound, or 1 pound annuity will amount unto, or 1000 pound in 21 yeares; place it in Decimals, and cut off 1, 2, or adde 3 Cyphers to the last, or remove 3 places and you shall find your demand.

*Example.*

1000 <i>li.</i>	100 <i>li.</i>
1.2.3	1.2.3
8648 690	864 869
<hr/>	<hr/>
8648 <i>l.</i> 13 <i>s.</i> 9 <i>d.</i> 3:5	864 <i>l.</i> 17 <i>s.</i> 4 <i>d.</i> 3 <i>q.</i>
10 <i>li.</i>	1 <i>li.</i>
1.2.3.4	1.2.3.4.5
86 4869	864869
<hr/>	<hr/>
86 <i>l.</i> 9 <i>s.</i> 8 <i>d.</i> 3:4	8 <i>l.</i> 12 <i>s.</i> 11 <i>d.</i> 1:2

3 *Example.*

What is 546 pound yearly annuity for 14 yeares worth in ready money, at 10 pound in the hundred compound interest?

Find the fouteenth number in the Breviate of 10 pound in the hundred; from it subtract an Unite in the first place, and adde a Cypher, makes 279749830; which multiply by 546,  
makes

what  
ount  
it in  
hers  
hall

makes 152743407180 ; which divide by 37974983, the 14 number in the Breviate, makes 40 l. 2 pound, 4 shillings, 2 pence, 3 farthings.

$$\begin{array}{r}
 40 \\
 4208 \\
 8010897 \\
 088347552447 \quad \text{li. 1.2.3.4.} \\
 152743407180 \mid 000 \quad (4022 \mid 2.11 \\
 379749833333333 \\
 379749888888 \\
 37974999999 \\
 379744444 \\
 379777 \\
 3799 \\
 37
 \end{array}$$

Makes 4022 l. 4 s. 2 d. 3/4

If a summe of money due at the end of any number of yeares specified, be bought after any rate *per cent.* compound interest for a price known : to find what that summe due at the end of that terme is.

1 Example.

There is a Debt bought for 513 pound, 3 shillings, 2 pence ready money, which was due

due at 7 yeares end, now the Question is, what the debt was at 10 pound in the hundred compound interest? Set your money paid in Decimals, makes 513|158; which multiply by 19487171, the number against 7 yeares, cutting off 10 figures, makes 999 pound, 999 thirds, wanting but one third of 1000 pound; wherefore I conclude, the debt was 1000 pound, which was due at 7 yeares end.

### 2 Example

There was a Debt bought for 600 pound, which was due at 4 yeares end, what was that debt at 10 pound in the hundred compound interest? Multiply 600 pound by the numbers against 4 yeares, which are 14641000 makes 878 pound, 460000 sevenths, or in Coyne 878 pound, 9 shillings, 2 pence, 2:5 of one penny for the summe of that debt.

$$\begin{array}{r}
 14641000 \\
 \times 600 \\
 \hline
 878460000
 \end{array}$$

Makes 878 l. 9 s. 2 d. 2:5 of a penny.

Directi-

# Directions for the understanding of the Tables of Interest at 8 *per Cent. per Annum.*

**A**lthough it hath already been plainly demonstrated, how to frame and calculate Tables for the working of Interest at any rate *per Cent.* for any sum desired; yet for the ease and benefit of any that would be informed, Here followeth many exact Tables, composed with much paines, and time, wherein may be found the Interest of any summe, at what rate desired, either 8. 10. 7. 6. *per Cent.* by the Yeare: also many other profitable Tables of the true value of *Leases, Annities, Purchases, of the Square and Cube Roote, Reduction of Forraigne Waight and Measures, allowance and Waight of English Gould,* very necessary for all Merchants, and others, that desire to be informed.

First, the following Table sheweth the just Interest of any grosse summe of money from 10000 pound, to 5 pound; from one to foure *Moneths*, at the rate of 8 pound *per Cent. per Ann.* so plaine and easie, they neede no explanation; yet for the satisfaction of the meanest capacity, here are Examples given, shewing the use of them, in the next Table, Intituled,

led, *Simple Interest at 8. per Cent.* That Colume downward toward the left hand, you shall find your summe you desire to know the Interest of; then direct your eye straight out in a line towards your right hand, under that Moneth you desire, will give you your demand: For Example, I desire to know the Interest of 6500 pound at 8 pound *per Cent.* for two Moneths, in the Table of Thousand, you finde in the first Colume your summe, from whence in a straight line toward your right hand, in the Colume of two Moneths, you shall find your desire; which is 86 pound, 13 shillings, 4 pence. 6500 pound for 3 Moneths, is 100 pound, 0 shillings, 0 pence; if you desire for longer then 4 Moneths, find out what your summe commeth to for one halfe, or one third of your time desired, and double or treble it: For Example; I would know the Interest of 7500 pound, at 8 pound *per Cent.* for 9 Moneths; in the next Table of 8 pound *per Cent.* I finde 7500 pound, for 3 Moneths is 150 pound, which you may multiply by 3 is 450 pound, the summe desired; if you desire to know the Interest of smaller summes, you have following Tables which give you the Interest from 10000 pound to 1 shilling, from one day to 4 or 8 Moneths, at 8. 10. 7. 6 pound, *per Cent.* Composed exactly



actly to one fourth part of a penny. If you desire to know the Interest of any summe of compounded Figures, as 1246 pound, or 123 pound, or 27 pound, or the like, take these Examples. To know the Interest at 8 pound *per Cent.* of 1642 *li.* 16 *s.* for two Moneths; Looke in the Table of Interest at 8 pound *per Cent.* for the Interest of 1000 pound, you will find it for two Moneths to be 13 pound 6 shillings 8 pence, then find out in the Table of hundreds, for the Interest of 200 pound, which you will find to be for two Moneths 2 pound, 13 shillings, 4 pence; then in the Table of lesser summes at 8 pound *per Cent.* find the Interest of 46 pound: the Interest of 40 pound at 8 pound *per Cent.* for two Moneths is 10 shillings, 8 pence, and 6 pound for two Moneths in the next Table after, you will find to be 1 shilling, 7 pence, halfe farthing, all which adde together is 16 pound, 12 shillings, 3 pence, halfe farthing.

Simple

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# Simple Interest at 8 per Cent.

	1 Month.	2 Month.	3 Month.	4 Month.
li.	li. s. d.	li. s. d.	li. s. d.	li. s. d.
10000	66.13.4	133. 6.8	200. 0.0	266.13.4
9500	63. 6.8	126.13.4	190. 0.0	246. 6.8
9000	60. 0.0	120. 0.0	180. 0.0	240. 0.0
8500	56.13.4	113. 6.8	170. 0.0	226.13.4
8000	53. 6.8	106.13.4	160. 0.0	213. 6.8
7500	50. 0.0	100. 0.0	150. 0.0	200. 0.0
7000	46.13.4	93. 6.8	140. 0.0	186.13.4
6500	43. 6.8	86.13.4	130. 0.0	173. 6.8
6000	40. 0.0	80. 0.0	120. 0.0	160. 0.0
5500	36.13.4	73. 6.4	110. 0.0	146.13.4
5000	33. 6.8	66.13.4	100. 0.0	133. 6.8
4500	30. 0.0	60. 0.0	90. 0.0	120. 0.0
4000	26.13.4	53. 6.8	80. 0.0	106.13.4
3500	23. 6.8	46.13.4	70. 0.0	93. 6.8
3000	20. 0.0	40. 0.0	60. 0.0	80. 0.0
2500	16.13.4	33. 6.8	50. 0.0	63.13.4
2000	13. 6.8	26.13.4	40. 0.0	53. 6.8
1500	10. 0.0	20. 0.0	30. 0.0	40. 0.0
1000	6. 13.4	13. 6.8	20. 0.0	26.13.4
0500	3. 6.8	6.13.4	10. 0.0	13. 6.8
0050	0. 6.8	0.13.4	1. 0.0	1. 6.8
0050	0. 40	0. 8.0	0.12.0	0.16.0
0010	0. 1.4	0. 2.8	0. 4.0	0. 5.4
0005	0. 0.8	0. 1.4	0. 2.0	0. 2.8

FINIS.

## Simple Interest at 8 per cent.

	1 Moneth.			2 Moneth.			3 Moneth.			4 Moneth.		
	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>
1000	6	13	4	13	6	8	20	0	0	26	13	4
900	6	0	0	12	0	0	18	0	0	24	0	0
800	5	6	8	10	13	4	16	0	0	21	6	8
700	4	13	4	9	6	8	14	0	0	18	13	4
600	4	0	0	8	0	0	12	0	0	16	0	0
500	3	6	8	6	13	4	10	0	0	13	6	8
400	2	13	4	5	6	8	8	0	0	10	13	4
300	2	0	0	4	0	0	6	0	0	8	0	0
200	1	6	8	2	13	4	4	0	0	5	6	8
100	0	13	4	1	6	8	2	0	0	2	13	4
	5 Moneth.			6 Moneth.			7 Moneth.			8 Moneth.		
	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>
1000	33	6	8	40	0	0	46	13	4	53	6	8
900	30	0	0	36	0	0	42	0	0	48	0	0
800	26	13	4	32	0	0	37	6	8	42	13	4
700	23	6	8	28	0	0	32	13	4	37	6	8
600	20	0	0	24	0	0	28	0	0	32	0	0
500	16	13	4	20	0	0	23	6	8	26	13	4
400	13	6	8	16	0	0	18	13	4	21	6	8
300	10	0	0	12	0	0	14	0	0	16	0	0
200	6	13	4	8	0	0	9	6	8	10	13	4
100	3	6	8	4	0	0	4	13	4	5	6	8

## Simple Interest at 8 per cent.

	1 Moneth	2 Moneth	3 Moneth	4 Moneth
<u>l.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>
90	0 12 0	1 4 0	1 16 0	2 8 0
80	0 10 8	1 1 4	1 12 0	2 2 8
70	0 9 4	0 18 8	1 8 0	1 17 4
60	0 8 0	0 16 0	1 4 0	1 12 0
50	0 6 8	0 13 4	1 0 0	1 6 8
40	0 5 4	0 10 8	0 16 0	1 1 4
30	0 4 0	0 8 0	0 12 0	0 16 0
20	0 2 8	0 5 4	0 8 0	0 10 8
10	0 1 4	0 2 8	0 4 0	0 5 4

	5 Moneth	6 Moneth	7 Moneth	8 Moneth
<u>l.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>
90	3 0 0	3 12 0	4 4 0	4 16 0
80	2 13 4	3 4 0	3 14 8	4 5 4
70	2 6 8	2 16 0	3 5 4	3 13 8
60	2 0 0	2 8 0	2 16 0	3 4 0
50	1 13 4	2 0 0	2 6 8	2 13 4
40	1 6 8	1 12 0	1 17 4	2 3 0
30	1 0 0	1 4 0	1 8 0	1 12 0
20	0 13 4	0 16 0	0 18 8	1 1 4
10	0 6 8	0 8 0	0 9 4	0 10 8

## Simple Interest at 8 per cent.

l.	1	2	3	4
	<u>Moneth</u>	<u>Moneth</u>	<u>Moneth</u>	<u>Moneth</u>
	<u>s. d. q.</u>	<u>s. d. q.</u>	<u>s. d. q.</u>	<u>s. d. q.</u>
9	1 2 1	2 4 3	3 7 0	4 9 2
8	1 0 3	2 1 2	3 2 1	4 3 0
7	0 11 0	1 10 1	2 9 2	3 8 3
6	0 9 2	1 7 0	2 4 3	3 2 1
5	0 8 0	1 4 0	2 0 0	2 8 0
4	0 6 8	1 0 3	1 2 0	2 1 2
3	0 4 3	0 9 2	1 7 1	1 7 0
2	0 3 0	0 6 1	0 9 2	1 0 3
1	0 1 2	0 3 0	0 4 3	0 6 1
	5	6	7	8
	<u>Moneth</u>	<u>Moneth</u>	<u>Moneth</u>	<u>Moneth</u>
	<u>s. d. q.</u>	<u>s. d. q.</u>	<u>s. d. q.</u>	<u>s. d. q.</u>
9	6 0 0	7 2 1	8 4 3	9 7 0
8	5 4 0	6 4 3	7 5 2	8 6 1
7	4 8 0	5 7 0	6 6 1	7 5 2
6	4 0 0	4 9 2	5 7 0	6 4 3
5	3 4 0	4 0 0	4 8 0	5 4 0
4	2 8 0	3 2 1	3 8 3	4 3 0
3	2 0 0	2 4 3	2 9 2	3 2 1
2	1 4 0	1 7 0	1 10 1	2 1 2
1	0 8 0	0 9 2	0 11 0	1 0 3

## Simple Interest at 8 per cent.

s.	1		2		3		4		5		6	
	Mon.		Mon.		Mon.		Mon.		Mon.		Mon.	
	d.	q.	d.	q.	d.	q.	d.	q.	d.	q.	d.	q.
20	1	23	04	36	18	0	9	12				
19	1	23	04	15	37	2	9	10				
18	1	23	04	05	27	0	8	02				
17	1	23	03	35	06	3	8	00				
16	1	12	03	24	36	6	7	02				
15	1	12	03	14	26	0	7	00				
14	1	12	03	04	15	2	6	02				
13	1	02	02	33	35	0	6	00				
12	1	02	02	23	24	3	5	02				
11	1	02	02	13	14	1	5	00				
10	0	31	29	13	04	0	4	3				
9	0	21	12	02	33	2	4	1				
8	0	21	11	32	23	0	3	3				
7	0	21	01	22	02	3	3	1				
6	0	10	31	11	32	1	2	3				
5	0	10	31	01	22	0	2	1				
4	0	10	20	31	11	2	1	3				
3	0	00	30	20	03	1	0	1				
2	0	00	30	10	20	3	0	3				
1	0	00	00	00	10	1	0	1				

## Simple Interest at 8 per cent.

	1 Day				2 Days				3 Days			
<u>l.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>q.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>q.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>q.</u>
1000	0	4	4	3	0	8	9	10	13	2	0	
900	0	3	11	10	0	7	10	20	11	9	3	
800	0	3	6	0	0	7	0	0	10	6	0	
700	0	3	0	3	0	6	1	20	9	2	1	
600	0	2	7	2	0	5	3	00	7	10	2	
500	0	2	2	10	0	4	4	20	6	6	3	
400	0	1	9	00	0	3	6	00	5	3	0	
300	0	1	3	30	0	2	7	20	3	11	2	
200	0	0	10	20	0	1	9	00	2	7	2	
100	0	0	5	10	0	0	10	20	1	3	3	
		4				10			20			
		Days				Days			Days			
<u>l.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>q.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>q.</u>	<u>l.</u>	<u>s.</u>	<u>d.</u>	<u>q.</u>
1000	0	17	6	22	3	11	0	4	7	10	0	
900	0	15	9	01	19	6	13	19	0	2		
800	0	14	0	11	15	12	3	10	3	0		
700	0	12	3	01	10	8	33	1	5	2		
600	0	10	5	31	6	40	2	12	8	0		
500	0	8	8	31	1	11	02	3	10	1		
400	0	7	0	00	17	60	1	15	1	0		
300	0	5	2	30	13	13	1	6	3	3		
200	0	3	5	30	8	9	10	17	6	2		
100	0	1	8	30	4	4	20	8	9	1		

## Simple Interest at 8 per cent.

l.	1 Day			5 Days			10 Days			20 Days		
	s.	d.	q.	s.	d.	q.	s.	d.	q.	s.	d.	q.
90	0	4	2	1	11	2	3	11	1	7	10	2
80	0	4	0	1	8	3	3	6	0	7	0	0
70	0	3	2	1	6	1	3	0	3	6	1	2
60	0	3	0	1	3	2	2	7	1	5	2	2
50	0	2	2	1	0	2	2	2	0	4	4	0
40	0	2	0	0	10	1	1	8	3	3	5	2
30	0	1	2	0	7	2	1	3	2	2	7	0
20	0	1	0	0	5	0	0	10	1	1	8	2
10	0	0	2	0	2	2	0	5	0	0	10	1
9	0	0	1	0	2	1	0	4	2	0	9	0
8	0	0	1	0	2	0	0	4	0	0	8	0
7	0	0	1	0	1	3	0	3	2	0	7	0
6	0	0	1	0	1	2	0	3	0	0	6	0
5	0	0	1	0	1	1	0	2	2	0	5	0
4	0	0	0	0	1	0	0	2	0	0	4	1
3	0	0	0	0	0	3	0	1	2	0	3	1
2	0	0	0	0	0	2	0	1	0	0	2	0
1	0	0	0	0	0	1	0	0	2	0	1	0
l.	1 Day			5 Days			10 Days			20 Days		



## Simple Interest at 10 per cent.

	1	2	3	4
	Moneth.	Moneth.	Moneth.	Moneth.
l.	l. s. d.	l. s. d.	l. s. d.	l. s. d.
10000	83:16:8	166:13:4	250: 0:0	333: 6:8
9000	75: 0:0	150: 0:0	225: 0:0	300: 0:0
8000	66:13:4	133: 6:8	200: 0:0	266:13:4
7000	58: 6:8	116:13:4	175: 0:0	233: 6:8
6000	50: 0:0	100: 0:0	150: 0:0	200: 0:0
5000	41:13:4	83: 6:8	125: 0:0	166:13:4
4000	33: 6:8	66:13:4	100: 0:0	133: 6:8
3000	25: 0:0	50: 0:0	75: 0:0	100: 0:0
2000	16:13:4	33: 6:8	50: 0:0	66:13:4
1000	8: 6:8	16:13:4	25: 0:0	33: 6:8
900	7:10:0	15: 0:0	22:10:0	30: 0:0
800	6:13:4	13: 6:8	20: 0:0	26:13:4
700	5:16:8	11:13:4	17:10:0	23: 6:8
600	5: 0:0	10: 0:0	15: 0:0	20: 0:0
500	4: 3:4	8: 6:8	12:10:0	16:13:4
400	3: 6:8	6:13:4	10: 0:0	13: 6:8
300	2:10:0	5: 0:0	7:10:0	10: 0:0
200	1:13:4	3: 6:8	5: 0:0	6:13:4
100	0:16:8	1:13:4	2:10:0	3: 6:8
55	0: 9:2	0:18:4	1: 7:6	1: 6:8
25	0: 4:2	0: 8:4	0:12:6	0:16:8

## Simple Interest at 10 per cent.

	1 Moneth	2 Moneth	3 Moneth	4 Moneth
<u>l.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>
90	0 15 0	1 10 0	2 5 0	3 0 0
80	0 13 4	1 6 8	2 0 0	2 13 4
70	0 11 8	1 3 4	1 15 0	2 6 8
60	0 10 0	1 0 0	1 10 0	2 0 0
50	0 8 4	0 16 8	1 5 0	1 13 4
40	0 6 8	0 13 4	1 0 0	1 6 8
30	0 5 0	0 10 0	0 15 0	1 0 0
20	0 3 4	0 6 8	0 10 0	0 13 4
10	0 1 8	0 3 4	0 5 0	0 6 8
9	0 1 6	0 3 0	0 4 6	0 6 0
8	0 1 4	0 2 8	0 4 0	0 5 4
7	0 1 2	0 2 4	0 3 6	0 4 8
6	0 1 0	0 2 0	0 3 0	0 4 0
5	0 0 10	0 1 8	0 2 6	0 3 4
4	0 0 8	0 1 4	0 2 0	0 2 8
3	0 0 6	0 1 0	0 1 6	0 2 0
2	0 0 4	0 0 8	0 1 0	0 1 4
1	0 0 2	0 0 4	0 0 6	0 0 8
10s.	0 0 1	0 0 2	0 0 3	0 0 4
5s.	0 0 0	0 0 1	0 0 1	0 0 2
2:6	0 0 0	0 0 0	0 0 0	0 0 1

## Simple Interest at 7 per cent.

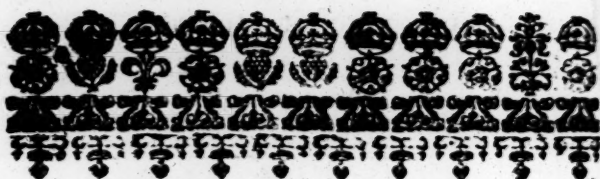
	1		2		3		4	
	Moneth		Moneth		Moneth		Moneth	
<u>l.</u>	<u>l.</u>	<u>s. d.</u>	<u>l.</u>	<u>s. d.</u>	<u>l.</u>	<u>s. d.</u>	<u>l.</u>	<u>s. d.</u>
10000	58:	6:8	116:	13:4	175:	0:0	233:	6:8
9000	52:	10:0	105:	0:0	157:	10:0	210:	0:0
8000	46:	13:4	93:	6:8	140:	0:0	186:	13:4
7000	40:	16:8	81:	13:4	121:	10:0	163:	6:8
6000	35:	0:0	70:	0:0	105:	0:0	140:	0:0
5000	29:	3:4	48:	6:8	87:	10:0	117:	13:4
4000	23:	6:8	46:	13:4	70:	0:0	93:	6:8
3000	17:	10:0	25:	0:0	42:	10:0	50:	0:0
2000	11:	13:4	23:	6:8	35:	0:0	46:	13:4
1000	5:	16:8	11:	13:4	17:	10:0	23:	6:8
900	5:	5:0	10:	10:0	15:	15:0	21:	0:0
800	4:	13:4	9:	6:8	14:	0:0	18:	13:4
700	4:	1:8	8:	3:4	12:	5:0	16:	6:8
600	3:	10:0	7:	0:0	10:	10:0	14:	0:0
500	2:	18:4	5:	16:8	8:	15:0	1:	13:4
400	2:	6:8	4:	13:4	7:	0:0	9:	6:8
300	1:	15:0	3:	10:0	3:	5:0	7:	0:0
200	1:	3:4	2:	6:8	2:	10:0	4:	13:4
100	0:	11:0	1:	3:4	1:	15:0	2:	6:8
90	0:	10:6	1:	1:0	1:	11:6	2:	2:0
80	0:	9:4	0:	18:4	1:	8:8	1:	17:4
70	0:	8:2	0:	16:4	1:	4:6	1:	12:8

## Simple Interest at 7 per cent.

	1 Moneth	2 Moneth	3 Moneth	4 Moneth
<u>l.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>	<u>l. s. d.</u>
60	0 7 0	0 14 0	1 1 0	1 8 0
50	0 5 10	0 11 8	0 17 6	1 3 4
40	0 4 8	0 9 4	0 14 0	0 18 8
30	0 3 6	0 7 0	0 10 6	0 14 0
20	0 2 4	0 4 8	0 7 0	0 9 4
10	0 1 2	0 2 4	0 3 6	0 4 8
<u>l.</u>	<u>s. d. q.</u>	<u>s. d. q.</u>	<u>s. d. q.</u>	<u>s. d. q.</u>
9	1 0 2	2 1 0	3 1 3	4 2 1
8	0 11 0	1 10 1	2 9 2	3 8 3
7	0 9 3	1 7 2	2 5 1	3 3 0
6	0 8 1	1 4 3	2 1 0	2 9 2
5	0 7 0	1 2 0	1 9 0	2 4 0
4	0 5 2	0 11 0	1 4 3	1 10 1
3	0 4 0	0 8 1	1 0 2	1 4 3
2	0 2 3	0 5 1	0 8 1	0 10 4
1	0 1 1	0 2 3	0 4 0	0 5 2
10s	0 0 2	0 1 1	0 2 0	0 2 3
9	0 0 2	0 1 1	0 1 3	0 2 2
8	0 0 2	0 1 0	0 1 2	0 2 0
7	0 0 1	0 0 3	0 1 1	0 1 3
6	0 0 1	0 0 3	0 1 1	0 1 2
5	0 0 1	0 0 2	0 1 0	0 1 1

## Simple Interest at 6 per cent.

	1. <i>Moneth</i>	2 <i>Moneth</i>	3 <i>Moneth</i>	4 <i>Moneth</i>
<i>lb</i> <i>d.</i>	<i>l. s. d.</i>	<i>l. s. d.</i>	<i>l. s. d.</i>	<i>l. s. d.</i>
500	2 10 0	5 0 0	7 10 0	10 0 0
400	2 0 0	4 0 0	6 0 0	8 0 0
300	1 10 0	3 0 0	4 10 0	6 0 0
200	1 0 0	2 0 0	3 0 0	4 0 0
100	0 10 0	1 0 0	1 10 0	2 0 0
90	0 9 0	0 18 0	1 7 0	1 16 0
80	0 8 0	0 16 0	1 4 0	1 12 0
70	0 7 0	0 14 0	1 1 0	1 8 0
60	0 6 0	0 12 0	0 18 0	1 4 0
50	0 5 0	0 10 0	0 15 0	1 0 0
40	0 4 0	0 8 0	0 12 0	0 16 0
30	0 3 0	0 6 0	0 9 0	0 12 0
20	0 2 0	0 4 0	0 6 0	0 8 0
10	0 1 10	0 2 0	0 3 0	0 4 0
9	0 0 9	0 1 9	0 2 8	0 3 7
8	0 0 8	0 1 7	0 2 4	0 3 2
7	0 0 7	0 1 4	0 2 1	0 2 9
6	0 0 6	0 1 2	0 1 9	0 2 4
5	0 0 5	0 1 0	0 1 6	0 2 0
4	0 0 4	0 0 9	0 1 2	0 1 7
3	0 0 3	0 0 7	0 0 10	0 1 3
2	0 0 2	0 0 4	0 0 7	0 0 9
1	0 0 1	0 0 2	0 0 2	0 0 4



## Further Instructions for the use of the Tables of Interest.

**T**Hose Tables of Interest, though they bee calculated but for 10000 *l.* to 1 *l.* from 1 day to 1, 2, 3, 4, 5, 6, 7, 8 Moneth; for 10, 8, 7, 6 *per cent.* yet observing the following direction, by them you may know for greater summes, for longer time, at a greater or less rate. First, a word or two for the use of what is expressly contained in them. The use of the Table at 8 *per cent.* is already shewed before the said Table. If you desire to know the Interest of any summe from 10000 *l.* to 21 *6 d.* at 10 *per cent.* finde out your summe in the first Colume of each Page, towards the left hand, in the Table of 10 *per cent.* then in a direct line toward the right hand, under the time you desire, you shall have your demand: Example, 400 *l.* at 10 *per cent.* for 4 moneths, you find (according to your former direction) to be 13 *l.* 6 *s.* 8 *d.*

400 l. at 10 per cent. for 3 months, is 10 l. 0. 0:  
 for 2 months, is 6 l. 13 s. 4 d. for 1 moneth, is  
 3 l. 6 s. 8. 1000 l. at 10 per cent. for 1 month you  
 will find (in the said Table of 10 per cent.) to  
 be 8 l. 6 s. 8. for 2 moneths 16 l. 13 s. 4. for 3  
 moneths 25 l. 0. 0. for 4 moneths 33 l. 6 s. 8.  
 9 l. for 2 moneths, at 10 per cent. in the Table  
 of Interest at 10 per cent. is 0 l. 3 s. 0 d. If you  
 desire to know the Interest of any summe at  
 7 per cent. or at 6 per cent. observe those Dire-  
 ctions which have been given in the Table of  
 10 and 8 per cent. you may easily have your  
 desire; first finding out your summe in the  
 first Column of that Table at the rate desired,  
 from thence in a line under the time de-  
 manded, you may have your desire. If  
 you desire to know Interest of a greater  
 summe. find out the Interest of one halfe, or  
 one third: then double or treble it. If you  
 desire the Interest of any summe for longer  
 time then is expressed in the Tables, find out  
 the Interest for one halfe, or one third of  
 the time, and double or treble it. If  
 you desire at any other rates then is in the  
 Table expressed, find out your summe at one  
 halfe the rate, or at one third the rate, or at  
 double or treble the rate; you may with ease  
 have your desire. Example, Interest at 3 per  
 cent. is halfe as much as the Interest at 6 per.  
 cent.



## Further Instructions for the use of the Tables of Interest.

**T**Hose Tables of Interest, though they bee calculated but for 10000 *l.* to 1 *s.* from 1 day to 1, 2, 3, 4, 5, 6, 7, 8 Moneth; for 10, 8, 7, 6 *per cent.* yet observing the following direction, by them you may know for greater summes, for longer time, at a greater or less rate. First, a word or two for the use of what is expressly contained in them. The use of the Table at 8 *per cent.* is already shewed before the said Table. If you desire to know the Interest of any summe from 10000 *l.* to 21 *6 d.* at 10 *per cent.* finde out your summe in the first Columne of each Page, towards the left hand, in the Table of 10 *per cent.* then in a direct line toward the right hand, under the time you desire, you shall have your demand: Example, 400 *l.* at 10 *per cent.* for 4 moneths, you find (according to your former direction) to be 13 *l.* 6 *s.* 8 *d.*



400 l. at 10 per cent. for 3 months, is 10 l. 0. 0:  
 for 2 months, is 6 l. 13 s. 4 d. for 1 moneth, is  
 3 l. 6. 8. 1000 l. at 10 per cent. for 1 month you  
 will find (in the said Table of 10 per cent.) to  
 be 8 l. 6. 8. for 2 moneths 16 l. 13. 4. for 3  
 moneths 25 l. 0. 0. for 4 moneths 33 l. 6. 8.  
 9 l. for 2 moneths, at 10 per cent. in the Table  
 of Interest at 10 per cent. is 0 l. 3 s. 0 d. If you  
 desire to know the Interest of any summe at  
 7 per cent. or at 6 per cent. observe those Dire-  
 ctions which have been given in the Table of  
 10 and 8 per cent. you may easily have your  
 desire; first finding out your summe in the  
 first Colume of that Table at the rate desired,  
 from thence in a line under the time de-  
 manded, you may have your desire. If  
 you desire to know Interest of a greater  
 summe, find out the Interest of one halfe, or  
 one third; then double or treble it. If you  
 desire the Interest of any summe for longer  
 time then is expressed in the Tables, find out  
 the Interest for one halfe, or one third of  
 the time, and double or treble it. If  
 you desire at any other rates then is in the  
 Table expressed, find out your summe at one  
 halfe the rate, or at one third the rate, or at  
 double or treble the rate; you may with ease  
 have your desire. Example, Interest at 3 per  
 cent. is halfe as much as the Interest at 6 per.  
 cent.

cent. 3 and half per cent. is halfe 7 per cent.  
 4 per cent. is half 8 per cent. 5 per cent. is half  
 10 per cent. 12 per cent. is double 6 per cent.  
 14 per cent. is double 7 per cent. 16 per cent. is  
 double 8 per cent. 18 per cent. is treble 6 per  
 cent. 20 per cent. is double 10 per cent. Many  
 more examples might be given; but I make no  
 question, hee that hath the fortune to have  
 Money to put to Interest, or is fit to be tru-  
 sted with Interest Money, hath wit enough to  
 understand by what hath been already  
 said. If any question the exactnesse of those  
 Tables, instructions have been already given  
 for the perfect working of Interest at any  
 rate.

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The

The true value of an yearely payment, Annuity, or Lease of Twenty pound a year at 8 *per cent.* by which Table also you may understand what any lease or yearely payment is worth, lasting for any terme under 30 yeares. Example, a lease of 10 yeares to come, of 20 *l.* a yeare; looke in the first Col-  
 ume for Ten yeares; over against you finde 134 *l.* 4. 0. the true value of 8 *per cent.*

Yeares.	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>	Yeares.	<i>l.</i>	<i>s.</i>	<i>d.</i>	<i>q.</i>
1	18	10	4	0	16	177	0	6	2
2	35	13	3	2	17	182	8	8	0
3	51	10	10	0	18	187	8	9	0
4	66	4	10	0	19	192	1	5	0
5	79	17	1	0	20	196	7	3	2
6	92	9	1	2	21	200	6	8	2
7	104	2	6	2	22	204	0	3	2
8	114	18	7	2	23	207	8	3	2
9	124	18	9	0	24	210	11	5	2
10	134	4	0	0	25	213	19	9	2
11	142	14	7	0	26	216	3	10	2
12	150	15	5	0	27	218	13	11	3
13	158	1	6	0	28	221	0	4	0
14	164	17	8	0	29	223	3	3	0
15	171	3	9	2	30	225	3	0	2

The yearly increase of 10l. Interest upon Interest at 8 per cent. Usefull for any that put forth, or forbeare any sum of Money calculated for 21 years.

Yeares.	l.	s.	d.
1	10	16	0
2	11	13	3
3	12	11	11
4	13	12	1
5	14	13	10
6	15	13	4
7	17	2	9
8	18	10	2
9	19	19	9
10	21	11	9
11	23	6	3
12	25	3	7
13	27	3	11
14	29	7	5
15	31	14	5
16	34	5	2
17	36	19	11
18	39	19	2
19	43	3	1
20	46	12	2
21	50	6	9

The increase of an yearly payment of 10 l. Usefull for such as forbeare, or to pay for any summe of Money at 8 per centum, per annum, composed for 21 years.

Yeares	l.	s.	d.
1	10	0	0
2	20	16	0
3	32	9	3
4	45	1	2
5	58	13	3
6	73	7	2
7	89	4	6
8	106	7	3
9	124	17	6
10	144	17	3
11	166	9	1
12	189	15	5
13	214	19	0
14	242	2	11
15	271	10	4
16	303	4	10
17	337	10	0
18	374	10	0
19	414	9	2
20	457	12	4
21	504	4	6

The agreement between the 100 l weight of London, and the weight of those places following. Collected of those which I think have gone the nearest to the truth; being very usefull for all that do desire to know, or have occasion to make use of forain weight reduced into our weight used among us.

100 l. Weight at London, is at

	l.		l.
<i>Antwerpe</i> ————	96	<i>Noremberge</i> ————	90
<i>Cullen</i> ————	90	<i>Burges</i> ————	90
<i>Basil</i> ————	90	<i>Ansburgh</i> ————	95
<i>Ulme</i> ————	96	<i>Leipzig</i> ————	99
<i>Prestan</i> ————	120	<i>Lubick</i> ————	95
<i>Danzig</i> ————	116	<i>Geneva</i> ————	81
<i>Roane</i> ————	81	<i>Marseilles</i> ————	112
<i>Rochell</i> ————	112	<i>Paris</i> ————	91
<i>Tboloufe</i> ————	110	<i>Genna</i> ————	141
<i>Lyons</i> ————	105	<i>Millain</i> ————	141
<i>Venice smal weight</i>	151	<i>Padona</i> ————	132
<i>Great weight</i> ————	95	<i>Parma</i> ————	136
<i>Farrara</i> ————	133	<i>Ancona</i> ————	130
<i>Florence</i> ————	131	<i>Roma</i> ————	127
<i>Naples</i> ————	142	<i>Cicilia</i> ————	148
<i>Laquilla</i> ————	143	<i>Lisbone smal weight</i>	90
<i>Castill</i> ————	102	—————	90
<i>Frankfort</i> ————	90	<i>Great weight</i> ————	83

*A Table of the Names, Weight, and Valuation  
of English Gold.*

The Names and Titles of the Gold.	The weight.		The Value.	
	pen	grs.	s.	d.
The Royall	4	23	16	6
The halfe Royall	2	11	8	3
Old Noble	4	6	14	8
Halfe old Noble	2	4	7	4
Angell	3	8	11	0
Halfe Angel	1	16	5	6
Salute	2	5	6	11 ob.
Two part of a Salute	1	11	4	7
George Noble	3	0	9	11
Halfe George Noble	1	12	4	11 ob.
First Crowne, K. H. 8.	2	9	6	11 ob.
Base Crowne, K. H.	2	0	5	6
Great Sovereigne	10	0	33	0
Best Sovereigne, K. H.	3	14	11	8
Sovereigne, K. H.	4	0	11	0 ob.
Edward Sovereigne	3	14	11	0
Elizabeth Sovereigne	3	14	11	0
Elizabeth Crowne	1	19	5	6
Unites of K. Iam.	6	10	22	0
Double Crown, K. Ia.	3	5	11	0
Britain Crown, K. Ia.	1	14	5	6
Thistle Crown, K. Ia.	1	6	4	6 ob.
Halfe Brit. Crowne, K. Ia.	0	19	2	9
Last Coyne of K. Charles	5	20	20	0
Halfe Peece, K. Char.	2	22	10	0
The Quar. Peece, K. C.	1	11	5	0

## A Table of the Square and Cube Root.

<u>Root</u>	<u>Square</u>	<u>Cube</u>
1	1	1
2	4	8
3	9	27
4	16	64
5	25	125
6	36	216
7	49	343
8	64	512
9	81	729
10	100	1000
11	121	1331
12	144	1728
13	169	2197
14	196	2744
15	225	3375
16	256	4096
17	289	4913
18	324	5832
19	361	6859
20	400	8000
21	441	9261
22	484	10648
23	529	12167
24	576	13824
25	625	15625

## A Table of the Square and Cube Root.

<u>Root</u>	<u>Square</u>	<u>Cube</u>
25	676	17576
27	729	19683
28	784	21972
29	841	24389
30	900	27000
31	961	29791
32	1024	32768
33	1089	35937
34	1156	39304
35	1225	42825
36	1296	48656
37	1369	50653
38	1444	54872
39	1521	55419
40	1600	64000
41	1681	68921
42	1764	74088
43	1849	79507
44	1936	85184
45	2025	91125
46	2116	97336
47	2209	103823
48	2304	110592
49	2401	117649
40	2500	125000



## A Table of the Square and Cube.

Root.	Square	Cube.
51	2601	135651
52	2704	140608
53	2809	148877
54	2916	157464
55	3025	167375
56	3136	175616
57	3249	185193
58	3364	195112
59	3481	205379
60	3600	216000
61	3721	216981
62	3844	238328
63	3969	250047
64	4096	262244
65	4225	274625
66	4356	287496
67	4489	300753
68	4624	314432
69	4771	329199
70	4900	335000
71	5041	357911
72	5184	373348
73	5329	389017
74	5476	405224
75	5625	411875

## A Table of the Square and Cube

<u>Root.</u>	<u>Square</u>	<u>Cube.</u>
76	5776	438976
77	5929	456533
78	6084	474522
79	6241	493039
80	6400	512000
81	6561	531441
82	6724	550408
83	6889	571787
84	7056	592604
85	7225	614125
86	7396	636056
87	7569	648303
88	7744	681472
89	7921	705669
90	8100	729000
91	8281	753571
92	8464	778688
93	8649	804357
94	8836	830584
95	9025	857375
96	9216	884736
97	9409	915673
98	9604	941192
99	9801	970299
100	10000	1000000



*The use of the Table of the Square and Cube Root.*

**I**N this Table you have the Square and Cube of any number from 1 to 100; suppose the root to be any number given not exceeding 100. find out your Root or number in the first Colume under Root, in a direct line in the next Colume you have the square of your N. desired; in the third Colume you have the Cubicall number of your Root.

A Square is a Regular Superficies of 4 equall sides; a body of men standing Regular, as many in Rank as File, is a Regular square body: Land, Glasse, Board, or Stone of equall sides, that is as broad as long, is a regular square.

A Cube is a solid body comprized of 6 equall sides, and is accounted (by Geometritions) one of the 5 regular bodies. A stone or peece of Timber that is as thicke as broad, and as broad as long in form of a Die, is a regular Cube body.

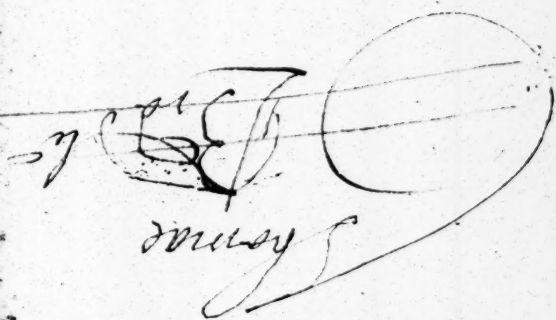
Many pleasant and profitable Questions is answered by the Table of Square and Cube Number. A piece of Land which is 40  
Rods

Rods long, and 40 Rods broad, how many Rods doth it contain? find out your Root, Number, and the Square of it you will finde to be 1600. your desire. A body of men standing 86 in Rank, and 86 in File, by the Table of Squares, is 7396. 26 in Rank, and 26 in File, is 676. in a Cube body of one foot, or 12 Inches every way in form of a Die, how many solid Inches will it make? find the Cube of 12, which is 1728; the Square of 12 is 144. Infinite are the Propositions answered by the Table of Square and Cube: but the ingenious may with ease spare me labour in giving many examples.

**FINIS.**

Rods  
A piece of Land which is 40  
is answered by the Table of Squares and Cube  
Many plain and profitable Questions  
regular Cube body.  
and as broad a long in form of a Die is a  
pieces of Land which is as it takes prodigious  
A house  
immense  
of a  
body composed of 6

7  
3  
e  
-  
6  
r  
v  
e  
s  
d  
e  
n



James  
is my name  
with my pen  
I write this  
and sign